



User Manual

Version 3.7

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CONTENTS

INTRODUCTION	i
ABOUT THIS MANUAL	i
LICENCE AGREEMENT	iii
1 - GETTING STARTED	1.1
DIGITAL AUDIO EDITING	1.1
SADiE SYSTEMS	1.1
SADiE BASICS - PLEASE READ THIS BIT!	1.1
TERMINOLOGY	1.2
MOUSEWORK:	1.3
USER MANAGEMENT	1.3
STARTING SADiE	1.3
THE DISPLAY	1.5
ON-SCREEN HELP	1.6
TUTORIAL	1.6
CONNECTIONS	1.6
RECORDING THE MATERIAL INTO SADiE	1.7
PLAYING THE EDL	1.9
ARRANGING YOUR EDL	1.10
SAVING YOUR WORK	1.12
EDITING THE SPEECH	1.12
ADJUSTING EDITS	1.14
BOTH AT THE SAME TIME!	1.15
MIXING IN THE MUSIC	1.16
THE FINISHED PRODUCT	1.19
SHUTTING SADiE DOWN	1.19
2 - RECORDING	2.1
OVERVIEW	2.1
MULTI-CHANNEL TRACKS	2.1
RECORDING TO THE PLAYLIST	2.2
TRACK PROPERTIES	2.3
RECORDING LEVELS	2.4
RECORDING IN NON-REAL TIME	2.5
MAKING CUTS DURING RECORDING	2.5
OVERDUBBING	2.5
DROPPING IN AND OUT OF RECORD	2.5

BACKGROUND RECORDING	2.6
TIME STAMPING.....	2.8
INPUT MONITOR WINDOW	2.8
CHOOSING A DISC FOR RECORDING	2.9
3 - USING THE PLAYLIST	3.1
<hr/>	
THE PLAYLIST DISPLAY.....	3.1
SHOWING ENTRIES AS PROFILES.....	3.1
SCROLLING AND ZOOMING	3.2
SPLITTING THE VIEW OF THE PLAYLIST	3.3
STREAM UNITS.....	3.3
FADE DISPLAYS	3.3
DISPLAYING COMMENTS FOR EACH ENTRY	3.3
PLAYING THE EDL.....	3.3
SOLOING AND MUTING STREAMS	3.4
VARISPEED PLAYBACK.....	3.4
TRANSMISSION MODE.....	3.5
LOCATING.....	3.6
USING THE TIME BAR	3.6
USING THE CURRENT-TIME DISPLAY	3.6
USING THE TRANSPORT CONTROL BUTTONS	3.7
USING HOTKEYS.....	3.7
USING THE HARDWARE CONTROLLER.....	3.7
LOCATING TO IN OR OUT POINTS OF EDL ENTRIES	3.7
AUDIBLE SCRUBBING.....	3.7
FIXED SPEED SCRUBBING	3.8
STORING AND RECALLING LOCATOR POINTS.....	3.8
4 - ARRANGING AN EDL	4.1
<hr/>	
PLAYLIST STREAMS	4.2
ENABLING/DISABLING STREAMS	4.2
CHANGING THE LAYOUT OF STREAMS	4.2
TEMPLATES	4.4
RENAMING STREAMS.....	4.4
MANIPULATING EDL ENTRIES IN THE PLAYLIST	4.4
RAZOR-CUT.....	4.4
GLUE.....	4.5
SELECTING ENTRIES	4.5
RENAMING ENTRIES.....	4.6
CUT, COPY AND PASTE.....	4.6
CUTTING (REMOVING) ENTRIES FROM THE EDL.....	4.6

COPYING EDL ENTRIES TO THE PASTE BUFFER.....	4.6
PASTING ENTRIES INTO THE EDL.....	4.6
PASTING WHOLE EDLs INTO ANOTHER EDL	4.7
MOVING ENTRIES AROUND IN THE EDL.....	4.7
CHANGING STREAMS FOR EDL ENTRIES	4.8
ADDING NEW ENTRIES TO THE EDL FROM THE CLIPSTORE.....	4.8
REPEATING EDL ENTRIES.....	4.9
REMOVE GAP.....	4.9
SNAP TO CURSOR.....	4.9
AUTOPLACE & SLIP.....	4.9
GROUPING ENTRIES.....	4.11
MAKE STEREO AND MAKE MONO.....	4.11
BOUNCE-DOWN	4.12
SPECIAL BOUNCE FUNCTIONS.....	4.13
UNDO AND REDO	4.14
LOCKING ENTRIES TO EDL TIME	4.14
CLIP DETAILS WINDOW - CHANGING ENTRY CHARACTERISTICS.....	4.14
FADES AND LEVELS.....	4.15
ENTRY TIMES	4.17
MISCELLANEOUS	4.18
TEXT EDL	4.18
DISPLAYING THE TEXT EDL	4.18
USING THE TEXT EDL	4.19
CUSTOMISING THE TEXT EDL DISPLAY.....	4.19
PRINTING THE TEXT EDL.....	4.19
WORKING WITH MORE THAN ONE EDL.....	4.20
DSP POWER	4.20
LIST UNPLAYABLE POINTS.....	4.21
INACTIVE STREAMS AND ENTRIES.....	4.22
SCRUBBING AND DSP POWER.....	4.23
NOTES ON MULTI-TASKING.....	4.23
5 - EDITING	5.1
OVERVIEW.....	5.1
SYNC. OR NON-SYNC. EDITING?.....	5.1
DEFAULT CROSSFADES AT EDIT POINTS	5.1
EDITING THE PLAYLIST WITH A MOUSE.....	5.2
RAZOR BLADE OR SCISSORS?	5.2
CUT-AND-SPLICE EDITING.....	5.2
PLAYLIST EDITING MODE.....	5.3

FADES AND CROSSFADES.....	5.6
EDITING THE PLAYLIST WITH THE HARDWARE CONTROLLER.....	5.7
CUT-AND-SPLICE EDITING.....	5.7
PLAYLIST EDITING MODE.....	5.7
FADES AND CROSSFADES.....	5.9
USING THE TRIM EDITOR	5.10
OPENING THE TRIM EDITOR.....	5.10
SELECTING WHAT TO ADJUST.....	5.12
ADJUSTING THE EDIT.....	5.13
TOP-AND-TAILING AND DEFINING NEW CLIPS	5.15
ADJUSTING THE HOTSPOT	5.15
RENAMING CLIPS.....	5.15
FADES AND CROSSFADES.....	5.15
MAKING A LOOPABLE EDIT	5.16
CLIP DETAILS.....	5.16
WRITING BACK THE FINISHED EDIT	5.17
RE-LOADING	5.17
MAKING A NEW EDIT	5.18
WRITING BACK AUTOMATICALLY	5.18
MAINTAINING SYNC.	5.18
OTHER TRIM EDITOR TOOLS	5.19
REGION EDITING	5.20
ENABLING REGION EDITING.....	5.20
DEFINING THE REGION.....	5.21
ADJUSTING THE REGION.....	5.22
PREVIEW TOOLS.....	5.23
OTHER REGION EDITING TOOLS.....	5.23
6 - MIXING AND PROCESSING	6.1
THE MIXER.....	6.1
DESCRIPTION	6.1
GROUPING FADERS.....	6.3
PHASE REVERSE CONTROLS	6.3
MIXER PROCESSING	6.5
INSERTING PROCESSING IN MIXER STRIPS.....	6.5
ADJUSTING MIXER PROCESSING	6.6
SAVING SETTINGS.....	6.8
TEMPLATES	6.9
PROCESSING STEREO.....	6.10
MS DECODER.....	6.10

ROUTING.....	6.11
DESCRIPTION.....	6.11
EQ/DYNAMICS ON RECORDING.....	6.12
BOUNCE-DOWN.....	6.12
SUB-GROUPING STREAMS FOR PROCESSING.....	6.13
EFFECTS SENDS AND RETURNS.....	6.13
RE-ORGANISING THE MIXER.....	6.14
CHANGING THE ORDER OF THE MIXER STRIPS.....	6.15
HIDING & REVEALING STRIPS.....	6.15
MINIMISING AND MAXIMISING STRIPS.....	6.16
PLUG-INS.....	6.17
THE PROCESS WINDOW.....	6.17
PLUG-INS.....	6.17
DEMONSTRATION PLUG-INS.....	6.18
APOGEE UV22 SUPER CD ENCODING.....	6.18
MASTERING LIMITER.....	6.19
GRAPHICAL EQ.....	6.20
DE-ESSER.....	6.21
HIDITHER 96.....	6.23
CEDAR DE-NOISE.....	6.32
CEDAR DE-CLICK.....	6.33
OFFLINE DIRECTX PROCESSING.....	6.38
NON 1 - 1 PROCESSES.....	6.40
SAMPLE RATE CONVERTER.....	6.40
SAMPLE RATE CONVERSION TESTS.....	6.41
.....	RESAMPLER
.....	6.46
.....	TIMEMOD
.....	6.47
PEAK METERING.....	6.48
METERING WINDOW.....	6.49
LOG OVERLOADS WINDOW.....	6.50
AUTOMATION.....	6.52
OVERVIEW.....	6.52
AUTOMATION MODES.....	6.53
RECORDING AND REPLAYING A SIMPLE MIX.....	6.54
SNAPSHOT AUTOMATION.....	6.54
RECORDING SNAPSHOT AUTOMATION.....	6.55
DISPLAYING AUTOMATION DATA.....	6.55
EDITING AUTOMATION DATA.....	6.56

INTERNAL RE-RECORDING.....	6.57
MIXER ROUTING TUTORIAL	6.58
7 - FILE MANAGEMENT	7.1
<hr/>	
OVERVIEW	7.1
EDLs	7.1
CLIPSTORES	7.2
USING THE CLIPSTORE WINDOW.....	7.3
STORING CLIPS IN A CLIPSTORE.....	7.4
MOVING CLIPS AROUND CLIPSTORES.....	7.5
MOVING CLIPS TO OTHER WINDOWS.....	7.5
CLIP DETAILS.....	7.5
USING ONE CHANNEL OF STEREO/MULTI-CHANNEL CLIPS.....	7.5
MIXER SET-UPS.....	7.5
PROJECTS	7.7
START-UP	7.7
MANAGING PROJECTS.....	7.8
MANAGING WORK WITHIN A PROJECT	7.9
SUB-PROJECTS	7.11
CLOSING THE CURRENT PROJECT.....	7.11
DELETING THE CURRENT PROJECT	7.11
BACKING UP A PROJECT TO THE AUDIO DISK.....	7.11
FILE RECOVERY	7.11
BACKUP FILES.....	7.12
TRACK MANAGEMENT.....	7.12
THE SOURCE TRACKS FOLDER	7.12
CLEANUP PROJECT	7.13
MISSING TRACKS	7.14
THE SOURCE TRACKS TOOLBAR.....	7.15
AUDIO DISK AND FILE MANAGEMENT.....	7.16
CHECKING SPACE ON YOUR DISK OR SCSI DEVICE.....	7.16
LOGGING AUDIO DISKS	7.17
NAMING AUDIO DISKS	7.17
COPYING FILES	7.18
RENAMING AND DELETING FILES.....	7.19
OTHER SCSI DRIVES.....	7.19
ARCHIVING	7.19
PROJECT BACKUP	7.20
PROJECT RESTORE	7.21
SELECTIVE ARCHIVING	7.22

ARCHIVING NON-PROJECT WORK.....	7.22
FORMATTING AUDIO DISKS	7.23
FILE FORMATS.....	7.25
AUDIO DISK FORMATS AND FILE FORMATS	7.25
TRACK NAMES.....	7.27
RECREATE PROFILES.....	7.27
EDL FILES	7.28
COPYING FILES TO AND FROM THE PC.....	7.28
PC AUDIO IMPORT	7.29
BOUNCE TO PC DISK	7.29
DOS TO SCSI DRIVE FILE TRANSFER	7.30
8 - SPECIFIC APPLICATIONS	8.1
SYNCHRONISATION	8.1
CONNECTING TIMECODE.....	8.1
SETTING UP SYNC DETAILS.....	8.3
ENABLING AND DISABLING SYNCHRONISATION.....	8.5
MONITORING TIMECODE SYNC	8.6
SETTING UP 9-PIN CONTROL.....	8.6
USING 9-PIN CONTROL IN SYNC	8.7
9-PIN MACHINE CONTROL.....	8.7
WORKING WITH SYNC MATERIAL	8.9
MAINTAINING SYNC	8.9
SYNCING RUSHES	8.10
NON-TIMECODE RUSHES (USING CLAPPERBOARDS)	8.10
RUSHES WITH TIMECODE BOARDS	8.10
AATON OR ARRIFLEX RUSHES	8.11
TRACKLAYING	8.12
AUTOCONFORMING.....	8.12
OVERVIEW.....	8.12
AUTOCONFORM SETUP	8.13
AUTOCONFORMING IN SADiE.....	8.14
AUTOCONFORMING IN BRIEF	8.17
HINTS AND TIPS	8.18
SADiE & LIGHTWORKS™ INTEGRATION.....	8.21
AUTO CONFORMING	8.21
READING LIGHTWORKS AUDIO FILES	8.24
RECORDING LIGHTWORKS FORMAT AUDIO	8.26
WORKING WITH AMS/NEVE AUDIOFILE.....	8.28
LIGHTWORKS MULTI-CHANNEL EDL IMPLEMENTATION	8.28

THE ENTRIES	8.28
NO FADES	8.29
FADE IN	8.29
FADE OUT	8.29
FADE IN AND FADE OUT	8.29
CROSSFADE	8.30
DUMP REELS	8.30
FREQUENT PROBLEMS	8.30
HARDWARE	8.31
CLASSIC/GREEN SCREEN AUDIOFILE	8.31
16 BIT SPECTRA	8.31
24 BIT SPECTRA	8.33
CD PRE-MASTERING	8.35
PQ LISTS - OVERVIEW	8.35
PQ OFFSETS	8.36
SADiE'S PQ EDITOR	8.36
GENERATING A PQ LIST AUTOMATICALLY	8.37
THE PQ LIST DISPLAY	8.38
PREVIEWING THE PQ ENTRY POINTS	8.39
EDITING/ MANUALLY CREATING A PQ LIST	8.39
PRINTING OUT THE PQ LIST	8.40
MAKING A MASTER TAPE/CDR	8.41
VERIFYING A MASTER	8.42
READING PQ DATA AND AUDIO FROM A MASTER	8.42
REPLAYING CDRs OR DDP TAPES	8.43
SAVING DDP PQ DATA	8.43
NOTES ON REAL-TIME AND NON-REAL-TIME MASTERING	8.44
ORANGE BOOK CDs	8.48
MULTISESSION CDs	8.50
DAT & CD IDs	8.51
DAT & CD IDS ON AN INPUT	8.51
DAT & CD IDS ON AN OUTPUT	8.52
RADIO PROGRAMMES	8.54
EDL START TIME	8.54
USING CLIPSTORES AS YOU RECORD	8.54
PICKING THE GOOD BITS	8.54
LIVE COMPILING	8.54
ROCK-AND-ROLL RETAKES	8.55
MUSIC EDITING	8.55
MULTIPLE TAKES	8.55

GENEX GX8000	8.56
9 - CUSTOMISING SADiE	9.1
<hr/>	
SETUP WINDOW	9.1
PLAYLIST AND MIXER TEMPLATES	9.8
DESKTOPS	9.9
ARRANGING WINDOWS	9.9
SPLIT AND DUPLICATE WINDOWS	9.9
TOOLBAR DISPLAY	9.9
SAVING AND LOADING DESKTOPS	9.10
CHANGING SCREEN RESOLUTION OR - WHY DOES MY SADiE LOOK DIFFERENT?	9.10
MESSAGE BOX PLACEMENT	9.11
CHANGING HOW SADiE STARTS UP	9.12
STARTING SADiE AUTOMATICALLY	9.12
AUTOMATIC LOGGING-IN AND LOADING DESKTOPS	9.12
10 - PORTIA	10.1
<hr/>	
OVERVIEW	10.1
SYNC SETUP	10.1
PORTIA SYNC SETTINGS	10.2
AUDIO SYNC SETTINGS	10.2
PORTIA RECORD SETUP	10.3
OTHER SETUP OPTIONS	10.4
PORTIA EDITING	10.4
EXAMPLE SETUPS	10.5
ERROR MESSAGES	10.6
EXAMPLE SETUPS - 1. Synchronising with an external sync source	10.6
CABLE CONNECTIONS	10.7
NOTES TO COVER DEVIATIONS FROM THIS SETUP	10.7
SOFTWARE SETUP	10.8
RECORDING AUDIO AND VIDEO IN SYNC	10.9
EXAMPLE SETUPS - 2. Synchronising with a stand-alone SADiE & Portia	10.10
CABLE CONNECTIONS	10.11
NOTES TO COVER DEVIATIONS FROM THIS SETUP	10.11
SOFTWARE SETUP	10.11
RECORDING AUDIO AND VIDEO IN SYNC	10.12

11 - SURROUND SOUND	11.1
INTRODUCTION.....	11.1
TERMINOLOGY	11.1
GETTING SADiE INTO SURROUND SOUND MODE.....	11.2
THE VISIBLE DIFFERENCES WHEN SURROUND SOUND FEATURES ARE ENABLED	11.3
SURROUND FORMAT BUSSES	11.4
THE LCR BUS.....	11.4
THE LCRS BUS.....	11.5
THE LCRSS BUS	11.6
THE SURROUND FORMAT MIXER STRIPS	11.7
CREATING A SURROUND MIXER	11.7
FLEXIBLE INPUT AND OUTPUT ROUTING	11.9
PPM MONITORING ON SURROUND MIXER STRIPS.....	11.9
UNDERSTANDING THE CONTROLS ON THE NEW SURROUND STRIPS	11.10
DIVERGENCE.....	11.13
ROUTING SURROUND BUSSES TO PHYSICAL OUTPUTS.....	11.16
WHICH OUTPUTS CAN I ROUTE MY SURROUND STRIPS TO?	11.16
IN WHAT ORDER WILL THE MONO SUB-BUSSES APPEAR ON THE OUTPUTS?	11.17
MAKING USE OF MIXER TEMPLATES	11.18
CREATING A MIXER TEMPLATE	11.18
USING A MIXER TEMPLATE	11.18
FAQs, TIPS AND TROUBLESHOOTING.....	11.19
12 - MULTIPLE AUDIO UNITS	12.1
THE PLAYLIST AND MIXER	12.1
SCSI DISKS AND RECORDING.....	12.3
Record enabling streams.....	12.4
BOUNCING AND NON-REAL TIME OPERATIONS	12.4
CD MASTERING WITH MULTI-UNITS	12.6
APPENDIX A - WINDOWS BASICS	A.1
USING A MOUSE	A.1
WINDOWS FEATURES	A.1
WINDOWS 3.1 & 3.11	A.2
WINDOWS 95	A.3
TITLE BAR	A.3
MENU BAR.....	A.4
WORK AREA.....	A.4
DIALOGUE BOXES.....	A.4

SELECTING ITEMS FROM A LIST.....	A.4
SWITCHING BETWEEN APPLICATIONS.....	A.5
RESTARTING THE COMPUTER.....	A.5
APPENDIX AB - SOFTWARE INSTALLATION	A.1
PREPARATION.....	B.1
INSTALLATION.....	B.1
APPENDIX ABC - HARDWARE CONTROLLER FUNCTIONS	A.1
EDIT CONTROLLER	C.1
FADER PANEL (and the single fader on the edit controller)	C.3
APPENDIX ABCD - EQUALISATION CURVES	A.1
APPENDIX ABCDE - USER MANAGEMENT	A.1
INTRODUCTION	E.1
USERNAMES.....	E.1
PASSWORDS	E.1
MANAGEMENT PRIVILEGE LEVEL	E.1
SADiE SETTINGS FILES.....	E.2
USING THE APPLICATION	E.3
CREATING A USER DATABASE AND LOGGING IN	E.3
THE MAIN WINDOW.....	E.5
ADDING A USER	E.5
EDITING AN EXISTING USER'S DETAILS.....	E.6
REMOVING A USER	E.6
SAVING YOUR CHANGES TO THE USER DATABASE	E.6
SELECTING A DIFFERENT USER DATABASE	E.7
IMPORTANT POINTS.....	E.8
APPENDIX ABCDEF - TECHNICAL SUPPORT	A.1
UNITED KINGDOM.....	F.1
REST OF EUROPE	F.1
NORTH AMERICA.....	F.1
WEB SITE	F.1
SADiE FORUM.....	F.1
FEEDBACK.....	F.2
APPENDIX ABCDEFG - GLOSSARY OF TERMS	A.1
APPENDIX H - SADiE DISK CHECKER	A.1
WHAT'S IT FOR ?	H.1
DISK CHECKER OPTIONS.....	H.1
CHECK DISK	H.2

DISK RECOVERY H.2

FORMAT H.2

SURFACE SCAN H.2

LOW LEVEL FORMAT H.3

APPENDIX I - EDL FORMATS SUPPORTED BY SADIE **A.1**

CMX I.1

 Entry number..... I.1

 Reel name..... I.1

 Channel..... I.1

 Edit type..... I.1

 Source and program times I.1

 The entries..... I.2

 Comment lines..... I.3

 Channels..... I.4

 Audio mapping I.4

Sony I.4

Grass Valley (GVG)..... I.4

 Entry number..... I.4

 Channels..... I.4

Lightworks Multi-channel..... I.5

 The Entries..... I.5

 Dump reels I.5

INTRODUCTION

ABOUT THIS MANUAL

This is a manual for version 3 of the Studio Audio Disk Editor - SADiE™ - software. Separate booklets are provided to cover hardware installation and networking.

SADiE3 has been designed to be simple and intuitive to learn and use. Despite this, you will find this manual and the on-screen help valuable in explaining the concepts underlying the system, suggesting methods of going about common tasks and as a technical reference.

We have tried to keep the manual as concise and clear as possible. In a comprehensive and professional system such as SADiE, there are different ways of performing different tasks and you will develop your own methods as you become more familiar with the system.

The manual is set out in the following chapters, which are referred to in the text in *italics*:

Getting Started explains the concepts behind the system and the terminology used and gives you a quick guide to getting your system working for you. The Tutorial provides a step-by-step guide to editing the practice tape provided. We recommend that you do this bit to save time later.

The next chapters provide detailed guides to the common tasks of *Recording*, *Using the Playlist*, *Arranging an EDL*, *Editing*, *Mixing* and *File Management*.

Specific Applications contains notes on operations relevant to more specialised areas of work. For example: CD pre-mastering; Autoconforming for video post-production and syncing film rushes.

Customising SADiE explains the settings you can change to affect the way the system works or appears on the screen.

Appendix A - Windows Basics is a reference for users who are not familiar with the Microsoft® Windows® 3.1 or Windows 95 operating systems.

The remaining *Appendices* provide technical reference sections and a *Glossary* of relevant terminology.

Throughout the manual we have used the following symbols in the margin:



The button to be pressed on the screen using the mouse, together with its name, which in the text is printed in bold capitals: e.g. **FRED**.



For other operations on the screen using the mouse.



For operations using the hardware controllers. These will usually follow the mouse description and the controller's button names will also be printed in bold. The **SHIFT** button is used in conjunction with other buttons (e.g. **SHIFT** + **MUTE** is the solo function), but it does not need to be held down to affect the first subsequent button press. The function keys F1-F12 can be set by the user. See Chapter 9, *Customising SADiE*.

Hardware controller users should also read all the mouse instructions.

The computer keyboard is used for typing in names, and for **Hotkeys**, which are useful shortcuts to many functions. They can be customised to your own preference and so are not referred to at every point in the manual - look up the default Hotkey settings in Chapter 9.

On the keyboard we often use the Shift key (often marked ⇧), the Ctrl. (Control) key, the Alt. Key and the Return (↵) key, which is duplicated by the Enter key.

Ctrl.+X means hold the Control key while pressing the X key.

Please take a little time to read this manual - it will pay off in time saved later. If you cannot find the answer to a problem here, then see *Appendix F* for how to get technical support.

Graham Puddifoot Nov 96

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1 - GETTING STARTED

DIGITAL AUDIO EDITING

Traditional analogue audio is a continuously varying electrical signal representing (*analogous* to) the soundwaves that produced it. This is stored on tape as a varying magnetic image and on vinyl as physical variations in the wall of the groove. With digital audio, this signal is sampled (measured) very frequently (typical sampling rates are 44.1 and 48 kHz, or thousand-times-a-second) and so converted to a stream of numbers. These numbers are kept in binary form that consists of only 1s and 0s which can be stored on digital audio tape or a computer storage medium. They can later be read back and re-converted to recreate the analogue waveform exactly. Digital audio is not subject to the same deterioration as analogue and is in a form which can be manipulated by computer software.

In SADiE™, the digital audio is stored on dedicated “SCSI” hard disk drives. The SADiE software can achieve complex editing and mixing operations by telling the computer to find and play back different sections of the audio on the SCSI disks at different times, or simultaneously. This has the effect of cutting sections out, varying the running order and mixing sections together, although the material recorded on the SCSI disks actually remains unchanged - it is just the instructions for replaying it that we are altering. The great advantage of this is that edits can always be undone and many different versions can be produced, hence the term “non-destructive editing”.

SADiE SYSTEMS

A system will comprise a host computer running the SADiE software which displays the user interface on a colour monitor and tells the system what you want it to do, and the specialised audio hardware, appropriate to the system you have bought.

The hardware consists of DSP (Digital Signal Processing) cards connected directly to one or more SCSI hard disk drives which store the digital audio.

The DSP cards are dedicated to handling the audio to professional standards, leaving the computer's power for the control and display functions of the interface, which is modelled on the familiar concepts of a multitrack tape machine, razor blade, mixing desk, etc.

Just like a tape recorder, the system has inputs for recording material in and outputs for playing it out again. The difference is you can do a lot more with it while it's in SADiE.

Details on connections, etc. can be found in the hardware installation booklet for your system.

SADiE BASICS - PLEASE READ THIS BIT!

NOTE: The software uses the Microsoft® Windows® 3.1 or Windows 95 operating systems. If you are not familiar with Windows and the use of a mouse, it would be a good idea to go through the “Windows Fundamentals” chapter of the Microsoft Windows User Guide or the “Visual Glossary” in “Introducing Windows 95”. Alternatively, there is a brief guide in *Appendix A - Windows Basics*, at the end of this manual.

SADiE is modelled very closely on the traditional studio concepts of a multitrack tape machine and mixing desk. These are represented by the **Playlist** and the **Mixer**. There is a flexible routing path between the system's physical **inputs**, the **Streams** of the Playlist, the Mixer's channel **strips** and the physical **outputs**. Audio processing such as EQ and Dynamics may be done in the Mixer and can be automated, whilst "outboard" units provide other processes. Most editing functions are done in the Playlist and a **Trim Editor** is available for detailed edit adjustment.

TERMINOLOGY

- Track** A Track is a whole, original audio recording, held on a SCSI disk as a sound file, and running from when you started recording to when you stopped. It is identified by a name and will remain on the disk until deliberately deleted. It has properties set when it is recorded, such as whether stereo or mono, what sample rate, etc. Don't confuse it with the term "track" as applied to multitrack tape machines (see **Streams**, below) - it's closer to the "track" on an LP or CD and recalls SADiE's origins as a simple stereo music editor!
- Clip** A Clip is any part of (which may be all of) a Track and can have its own name. It is not actually a separate recording, but a set of instructions to replay between in and out points within the relevant Track, at what level and with what lengths (and types) of fade-in and fade-out.
- Clipstore** A Clipstore is simply a list of Clips. You will find whole Tracks here, in a folder labelled "Source Audio Tracks" and may also choose to use it to store clips that you have topped and tailed for later use. This is like keeping a load of small reels of leadered tape inserts on the shelf before you put them into a piece of work. Different Clipstores can be saved for different projects.

NOTE: Deleting a Clip from a Clipstore does not mean you have deleted any audio, as the Track will still be on the SCSI disk. You will have simply deleted one particular version (in and out points, fades and overall level) of how to replay the audio.

- EDL** An Edit Decision List. This is the list of instructions that the system uses to play back the required Clips at the required times. It is a computer file that will need to be saved and can be later loaded and modified, just like a document on a word processor. You can think of the EDL as your script, cue sheet or running order, and the Tracks as the raw material. An EDL is graphically displayed in SADiE by the Playlist, where it is created by arranging Clips in the required order.
- EDL Entry** When Clips are placed in the Playlist they become EDL Entries as they then have a particular EDL replay time. Any changes made to an EDL Entry (such as level changes or adjustments to the in and out points) then only apply to that particular occurrence of the Clip and will not affect Clips in the Clipstore, or other EDL Entries of the same Clip.
- Playlist** The window on the screen which shows you graphically the work you are creating (i.e. the EDL). It acts as your tape machine and you will see EDL Entries as coloured blocks like bits of tape, or as profiles showing the level of the audio, positioned to be replayed when the current-time cursor passes over them like a playback head. Fade-ins and fade-outs are shown as slopes to the front and rear of the blocks. Editing is done by making "cuts" which divide Entries into two, so that one or the other can be removed, or the in and out points can be adjusted to fine edit the audio.
- Streams** EDL Entries in the Playlist are placed on Streams, each of which is routed to a channel strip of the Mixer to control the playback of the audio. A stereo Entry sits across any two adjacent Streams, a mono Entry only needs one. The Streams are therefore similar to the tracks of a multitrack tape machine but allow editing and overlapping within individual Streams and moving audio Entries around in time. There is no limit to the number of Streams you can add to the Playlist, only to the number of Entries the hardware of your system can play at once. The Streams are independent of the physical outputs of your hardware system and are routed to them by SADiE's Mixer.

Project

A Project is a useful way of looking after your work on a job-by-job basis. EDLs, the layout of the internal Mixer which plays them and Clipstores are all stored as **components** of a SADiE Project. A list of relevant Tracks is also kept for each Project.

MOUSEWORK:



We will use the following terms for using the mouse:

- | | |
|---------------------|---|
| Click | Press and release the left mouse button once. To “press” an on-screen button, point at it and single-click. |
| Double-click | Quickly press and release the left mouse button twice. |
| Right-click | Press and release the right mouse button. |
| Drag | Click and hold the left mouse button over the chosen item, move it with the mouse to a new position, then release the button. |

Right-button clicking with the mouse over many areas gives you a menu of alternatives for that part of the screen - remember to try this everywhere!

USER MANAGEMENT

There is a separate User Management application (program) for multi-user installations where security is important. This can only be run by designated System Administrators and allows the database of users and their passwords to be altered. *Appendix E* describes the use of this application.

User management provides:

1. Password security to stop unrecognised users starting SADiE.
2. Privilege levels for different SADiE users - some users may be allowed to record and edit, others to play back only.

The Project system described in Chapter 7, *File Management*, also restricts access to Projects to certain users.

If you do not need the full user management facility, the first time you run SADiE3, you will be asked for your user name and logged as the single user. To later add the security of a password, select "Change Password" in the File menu.

STARTING SADiE

In this manual, the illustrations assume that your computer is running with a display resolution of 800 x 600. If you want to change this, see “Changing Screen Resolution” in Chapter 9, *Customising SADiE*.

Turn on your computer and let the software boot itself up. If you have bought a Turnkey system, or if you selected the option when you installed the software (described in *Appendix B*), SADiE will run automatically. If not:

- Windows 95: Hit the Start button | Programs | SADiE Disk Editor group and select SADiE v3.

The first thing that happens is that you are presented with a box to log-in to the system. If you are starting SADiE for the first time, you will be asked your name. In a multi-user installation that has been already set up, you will need to type your name and password.

The following Project Start-up box will appear:



Select "Create a new Project" as this will keep together all the work you do in the following tutorial.

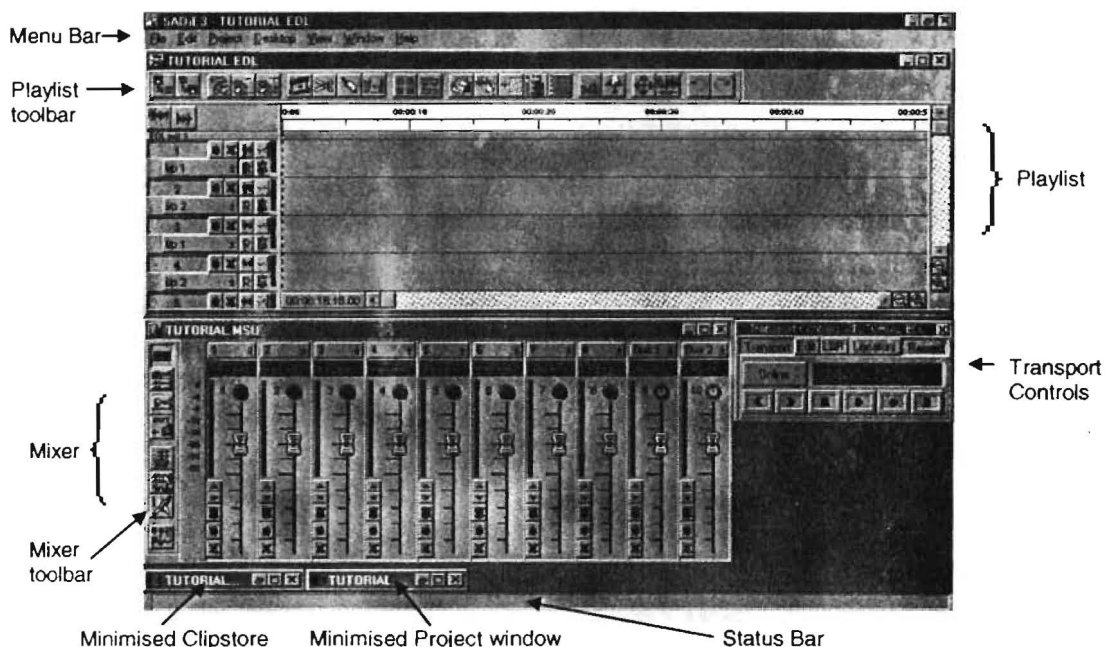
A box will appear asking you to name the Project. Type "Tutorial" as the Project name (replacing the default "projname" in the box) and click the "Create" button.

If you have more than one SCSI disk on your system you will now be asked which disk you want to record onto. Select one from the list or check the "Least Full Disk" box and click "OK".

The main SADiE window will now appear.

NOTE: We recommend that Windows95® users hide the taskbar in order to maximise the available screen area for SADiE.
If your taskbar is appearing on top of the SADiE window, right-click on the taskbar and select "Properties". Under the "Taskbar Options" section, deselect "Always on top".
You can then activate the start button by pressing Ctrl +Esc., and switch between applications with Alt +Tab.

THE DISPLAY



The main SADiE window, filling the whole screen, has a title bar and menu bar in common with most Windows applications.

The **menu** bar contains words which produce drop-down menus with commands for setting-up, file handling and display functions - for example, the File menu is displayed by clicking on the word "File". Windows has quick keyboard shortcuts to all menu commands: Press Alt + the underlined letter on the word in the menu bar, then the underlined letter of the command you want. SADiE's menu commands are listed in the *Index* under each menu name, with references to the relevant sections of the manual.

For most common tasks, however, the system has been designed to be operated by pressing on-screen buttons (by pointing and clicking with the mouse), or by using the hardware controllers. Buttons on the screen have a 3-D appearance and should look "depressed" ⊗ in their ON position.

Additionally, most menu commands and button actions can be programmed to be performed by SADiE's own Hotkeys on the computer keyboard and hardware controller function buttons (see Chapter 9, *Customising SADiE*).

At the bottom of the screen, the **status bar** describes buttons when you point at them. It can also be customised to display and control certain settings affecting the way SADiE is working.

The rest of the screen is a work area within which are displayed windows such as the Playlist, Mixer and Clipstore. Like all windows, these can be opened, closed, moved around or re-sized with the mouse. Different arrangements of your screen can be stored as **desktop** files, and reloaded when you want. This will be very useful when switching between tasks, and is covered in chapter 9, *Customising SADiE*.

For now, let's stick with the default desktop supplied. However many windows are on screen, one will be the active one, indicated by a coloured title bar.



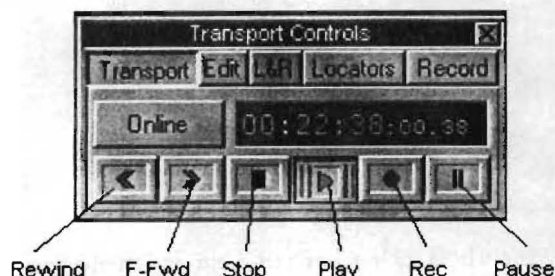
- Clicking with the mouse within a window always makes it become the active one and appear on top of any that may overlap it. The list at the bottom of the Window menu shows all open windows and is useful for quickly making active an obscured one or restoring to size a minimised one.



- On the hardware controllers the WINDOW button cycles through them.

NOTE: Many of the menu bar commands are defined by whichever is the active window. For example “Save” under the File menu will save the EDL file when the Playlist is the active window, and the Clipstore file when the Clipstore is active.

Each window has one or more **toolbars** containing buttons relevant to it. These toolbars can be attached to different parts of the window, hidden, or floated and moved somewhere else on the screen. Floating toolbars always appear on top of windows. Right-click over the toolbar to see the options, but let’s stick with the default desktop for the time being. The icons on buttons are shown in faint outline when their actions are not available.



The **Transport Controls** are a permanently active, floating toolbar used to control the whole system. Therefore they will always have a coloured title bar and appear on top of any overlapping windows. The tabs along the top choose which sections of the Controls are displayed. The basic Transport section contains familiar tape-machine type buttons, a current-time display and an **ONLINE** button which enables timecode and external machine synchronisation. On the keyboard, the spacebar duplicates Play and Stop.

You can close the Transport Controls when you don’t need them taking up screen space, and reopen them again under the “View” menu. A miniature current-time display and Play and Stop buttons can be displayed on the status bar by selecting it in SADiE’s Setup window (see Chapter 9, *Customising SADiE*).



PLAY, STOP RECORD, PAUSE and ONLINE are duplicated on the hardware controllers.

ON-SCREEN HELP

Resting the mouse pointer over a button displays the button name in a yellow box and the status bar at the bottom of the screen describes its action. Consequently, we have not given a button-by-button description in this manual. Click on “Help” in the menu bar to open the full help file.

TUTORIAL

This section will take you through a simple recording and editing session using the cassette tape provided. We recommend that you do this bit to save time later. The editing involved is the kind you might do in Radio - i.e. we are not concerned at this stage with maintaining sync to pictures - but it will serve as a good exercise whatever your area of work. You need to have already been through the “Starting SADiE” section above.

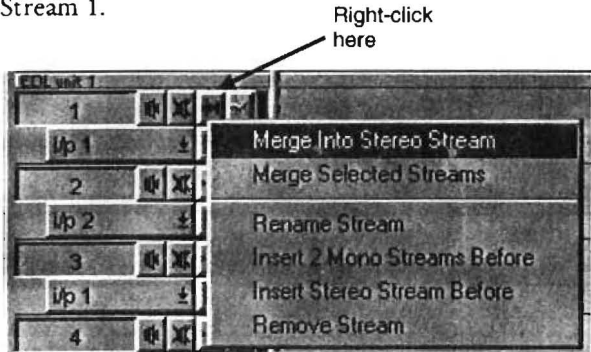
CONNECTIONS

Connect a line level signal from an audio cassette player (via a mixing desk if you wish) to analogue inputs 1&2. Connect outputs 1&2 to your monitoring system (see the hardware installation booklet for details).

RECORDING THE MATERIAL INTO SADiE

You are about to record three Tracks. First, a voice piece that will require editing, then two short pieces of music to mix in with the edited speech.

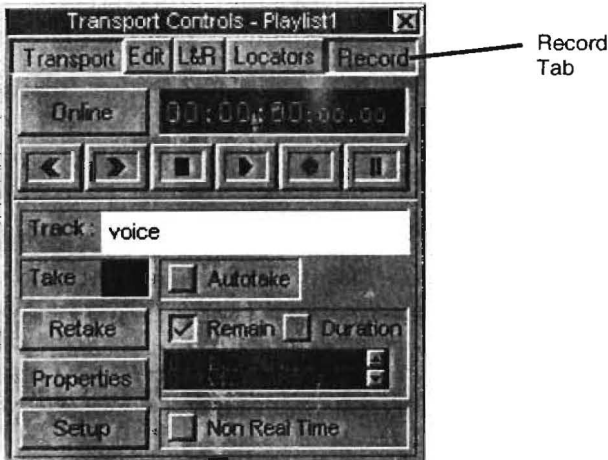
For simplicity, we are going to treat all the audio for this tutorial as stereo, so you should create a stereo Stream in the Playlist at this point: Right-click over the small Stream control buttons of Stream 1.



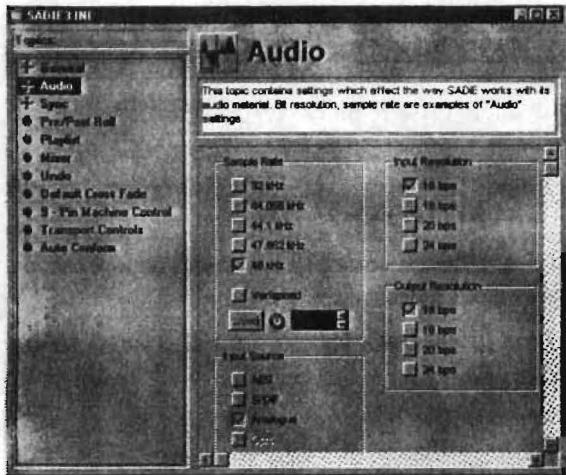
Select "Merge into Stereo Stream". Streams 1 and 2 will then be combined into a stereo Stream with a single set of control buttons. Now do the same on Stream 3 and merge Streams 3 and 4 into a stereo Stream, which we will use later.

NOTE: In future you should identify mono material and save space on your audio disk by recording it as mono Tracks. This is covered in Chapter 2, *Recording*.

- Open up the Record section of the Transport Controls by clicking on the Record tab.



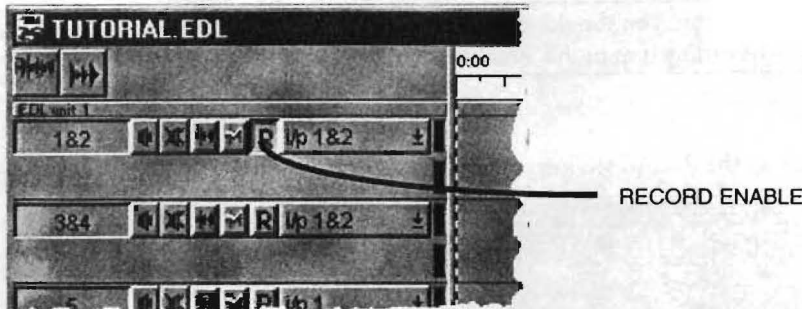
- Press "Setup" which will open the Audio section of SADiE's Setup-window.



- Select the input source to “Analogue” (as you are using SADiE’s analogue inputs), the Sample Rate to 44.1 or 48kHz (whichever your workplace uses most) and the input resolution to 16bps.

NOTE: If you are not sure which sample rate to use it is worth consulting your engineering staff. Choosing the wrong sample rate when recording can give you problems later on.

- Close the Setup window. (if you don’t yet know how to close a window, you should read *Appendix A - Windows Basics*).
- Name the Track “Voice” by clicking in the Transport Controls’ white name box and typing it in, ending with the Enter key (↵). You can use the Backspace key to correct mistakes.



- Press the small RECORD-ENABLE button on the stereo Stream 1&2 of the Playlist. This will tell SADiE to record a stereo Track and automatically place it on those Streams.
- Press the PAUSE button (on the Transport Controls or on the hardware controller); SADiE will go into “record-pause”, with the record button flashing. Play the cassette and you will be able to monitor it through SADiE and check the input level on the meters of Mixer channels 1&2. As this is an analogue input it may be necessary to adjust the level at the playback machine or mixing desk to avoid overloading SADiE’s Analogue-to-Digital converters, which would produce a permanently distorted recording.
- Rewind the cassette and play it again from the beginning. When you hear the words “... start recording now... ”, press the RECORD button to start SADiE recording - you will see the time display counting.





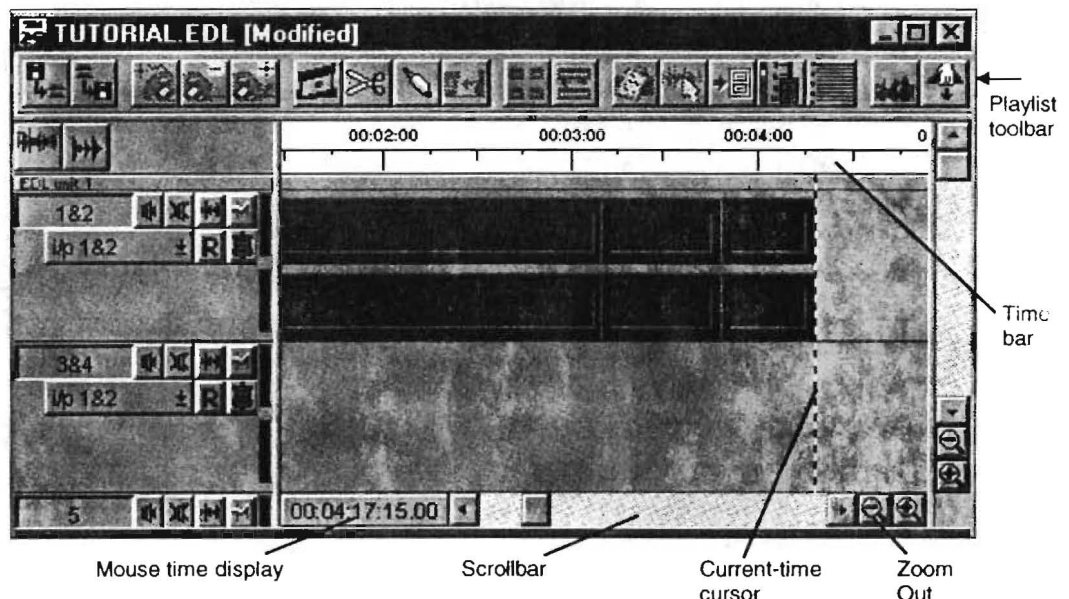
- The speech is three minutes long. When you hear the words "... forty-one calories... ", press the STOP button and stop the cassette player. You have now recorded a Track called "Voice" and a stereo EDL Entry with the same name will appear on the stereo Stream 1&2 of the Playlist.
- Now you are going to record the music, so enter the name "Music1" for the new Track, as above.
- Press the RECORD button, and restart the cassette player (if you got the level right for the speech, it will be fine for the music on this tape, so no need to check it again). The music is about 30 seconds long.
- When the music stops, rush to the nearest chair and sit down. Failing that, press STOP and stop the cassette again. Now you've recorded another track and there will be a second EDL Entry in the Playlist.
- Repeat to record a third Track, naming it "Music2". At the end of the second piece of music, stop both SADiE and the cassette machine.
- Finally, release the RECORD-ENABLE button on Stream 1&2.

PLAYING THE EDL

You have already created an EDL, as SADiE automatically placed Entries of the whole of all three Tracks in the Playlist.

Press the horizontal ZOOM OUT button a few times so that you can see all three Entries.

On the hardware controller, select ZOOM and adjust with the wheel.



Double-click on the STOP button - this is a very useful zero-locate function. The current-time cursor will return to zero - as shown by the Transport Controls' time display.

Press SHIFT + END: - the current-time cursor will locate at the start of the first EDL Entry.

You can now play back the EDL by pressing **PLAY**, or using the keyboard spacebar which duplicates Play and Stop functions. Notice the **current-time cursor** moving left to right across the Playlist, which will scroll automatically, and the current-time display in the Transport Controls or hardware controller reflecting the EDL time in the **time bar** at the top of the Playlist. The **REWIND**, **FAST-FWD**, **STOP**, **PLAY** and **PAUSE** buttons will do what you expect, but there is a much faster way of getting around in the Playlist:



Double-click in the white area of the time bar (notice that the exact time you are pointing to is indicated by the **mouse time display**). Playback will start immediately from that point.

NOTE: If you miss the white time bar and double-click on the grey bar marked 'Audio Unit A' directly underneath, you will find the streams of the playlist underneath will disappear. This is supposed to happen - double clicking on this divider bar hides that section of the playlist. There's no need to worry, your streams are still there - just double click again on the grey 'Audio Unit A' bar to make them re-appear.

Single-click anywhere in the time bar to stop playback.

Single-click anywhere in the time bar when playback is stopped to locate the current-time cursor to that point.



To access points not currently in the window, scroll the display by using the **scrollbar** along the bottom of the Playlist. You can single click or hold down the little arrow buttons, or click in the bar either side of the moving box. When the system is playing back it will override you in order to keep the current time in view. (Scrollbars are a standard Windows feature - see *Appendix A - Windows Basics*.)



Deselect **ZOOM** and move the scrubwheel to locate the current-time cursor to the desired point and press **PLAY**. (For quick locating, make sure the wheel is not in jog or shuttle mode, as selected by the **SCRUB** button.) The window will scroll automatically.



ZOOM

You can zoom in and out both horizontally and vertically with the two pairs of magnifying glass buttons. This is a useful way of getting at different parts of the EDL as well as changing your overall view.



Hit **ZOOM** (horizontal) or **SHIFT + ZOOM** (vertical) and use the wheel.

NOTE: The Playlist will always stay centred on the position of the cursor, so reposition it before zooming in, if necessary.

Practise getting around the Playlist, to play different sections. Other ways of locating to given points are covered in Chapter 3, *Using the Playlist*.

ARRANGING YOUR EDL

Right, now let's change the order of your Entries so that the speech comes after both pieces of music. Set the **ZOOM** level so that all three Entries are in view.:



Click on the Entry "Voice" to select it. It will turn red. You can now drag it with the mouse to a later location in the EDL and drop it after "Music2".

NOTE: Red is a **warning!** After moving the selected Entry using the mouse, it is a very good idea to deselect it by clicking on a blank, grey area of a Stream, or by holding the Shift key and clicking on the selected Entry again. This keeps it safe from being moved accidentally.



You can select more than one Entry for moving by holding the Shift key whilst clicking on them, or by dragging across them with the mouse to draw out a box that covers them. Be careful that you don't try to do this on an Entry that is already selected, because you will then be moving it.



CUT



COPY



PASTE

Another way of moving an Entry is to select it and then press CUT and it will be removed from the EDL to a temporary "paste buffer". Press PASTE and you can position the mouse where you want to re-insert it (the mouse pointer changes to a reel of tape) and paste it back in with a single click.

Pressing COPY instead of CUT wouldn't remove the Entry from the EDL, but would still copy it to the paste buffer, allowing you to paste it in somewhere else and so repeat that section of audio.

After pasting, the Entry is still in the paste buffer, so you could paste in more copies of it as well.

CUT, COPY and PASTE will therefore move, remove and allow you to repeat Entries in the EDL in just the same way as you would with text on a word processor.



Move the current-time cursor with the wheel so that it is over the Entry "Voice". Press EDIT/SELECT to select the Entry. It will turn red. Now press CUT and it will be removed from the EDL to a temporary paste buffer. Move the cursor to a new position, after the Entry "Music2" and press PASTE. "Voice" will be re-inserted after "Music2".

NOTE: When hitting EDIT/SELECT, make sure that the IN HOT and OUT buttons above the wheel have not been pressed and lit, otherwise you will enter editing mode, covered later.



SHIFT + EDIT/SELECT will deselect the Entry under the cursor or add other Entries for multiple selection. Other Entries can be selected with the PREVIOUS and NEXT buttons. Pressing EDIT/SELECT with no Entries under the cursor deselects them all. If you have the CLIP button selected and lit, the wheel will select Entries in turn.

SHOW
AUTOPLACE
TOOLBAR

Press this button on the Playlist toolbar to reveal:



The Autoplace toolbar. The first three buttons control the SLIP feature. Press the first, ENABLE SLIP button and then the third, SLIP RIGHT button.

Select an EDL Entry. When it turns red, all following Entries will turn dark blue indicating that they will move with the red one. Try it.

SLIP LEFT and SLIP RIGHT preselect whether previous and/or following Entries will be slipped when ENABLE SLIP is pressed. This is essential when you have many Entries in the EDL and you want to open or close up gaps without disturbing previous or following edits. On other occasions you will want to move an Entry on its own and will then turn SLIP off.

REMOVE
GAP

To move an Entry to the left so that it butts up to the one before it, select it (red) and press REMOVE GAP. The SLIP feature will apply if enabled.



Once you have pre-selected SLIP LEFT and/or SLIP RIGHT with the mouse as above, SLIP on the hardware controller enables/disables the feature. With SLIP on, you will find that cutting and pasting Entries causes Entries to the right to slip accordingly. Use the default Hotkey - F6 on the keyboard - to remove gaps to the left of the selected Entry.



UNDO REDO

If you make a mistake whilst working on your EDL, you can step backwards through your actions by pressing UNDO. REDO steps you forward again. The number of actions you can undo (maximum 25) is adjustable in the Undo section of the Setup window. This is displayed from the View menu.



The UNDO button is at the bottom right of the panel and SHIFT + UNDO is redo.

Practise moving your Entries about in the Playlist.

NOTE: It is actually helpful to have the first Entry in your EDL starting some time after 00:00, so you can easily start playback just before it by double-clicking in the time bar. The Entry will also have room to move to the left during certain editing operations. To arrange this, move the whole EDL to the right a bit by moving the first Entry with Slip Right enabled.

In future, if you position the cursor at a point after 00:00 before you start recording, the first Entry will automatically appear there.

When you have practised enough, leave yourself with just the three Entries starting some time after 00:00, and in the following order: "Music 1", "Voice" then "Music2".


SAVING YOUR WORK

At this point, if you were doing something more exciting than this tutorial, you might have created a complex EDL arrangement, so this is a good time to save your work as a file on the computer's internal DOS drive.



Select "Save Project" from the Project menu.



Make the Project window active with the WINDOW button - it's the one with the  icon - and press the SAVE button. The Project window can stay minimised when you do this.

Alternatively, on the computer keyboard press **Alt, P, S** to use the Project menu Save command.

This command will save all the components of your "Tutorial" Project, including the EDL you have created so far.

EDITING THE SPEECH

Make sure that SLIP Left and Right are enabled, as described above.



SHOW ALL
PROFILES

Press SHOW ALL PROFILES in the top left corner of the Playlist to change the EDL Entries from blocks to profiles showing a visual display of the audio you are going to edit.

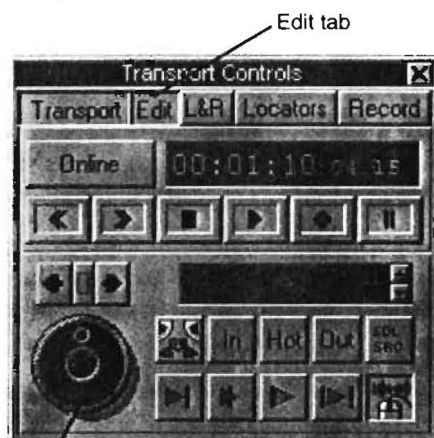


Press function key F12 to show all profiles

Experiment with playing the EDL and changing the horizontal and vertical zoom settings. You should be able to identify words and spaces in the Entry "Voice" as the cursor passes over them.



Display the Edit section of the Transport Controls. You can turn off the Record section, now that you've finished with it.



Scrubwheel



Click with the mouse over the scrubwheel and, holding the mouse button down, move the mouse up and down. This is **shuttle** mode - like spooling forwards and backwards across the heads of a tape machine - the more you move the mouse, the faster you go. Move the mouse from left to right and you will switch to **jog** mode - like nudging the reels of a tape machine backwards and forwards. Practice this on the speech as you are now going to find and mark two edit points between which you want to remove the audio, just like on a 1/4" tape machine.



RAZOR CUT

From the start of the speech, scrub to find where you want to come out for the first edit - just before the words "Jellied shrimp" - and release the mouse button. Then press the **RAZOR CUT** button. Scrub to where you want to come back in - immediately before the retake of the words "Jellied shrimp" - and press **RAZOR CUT** again. Use the **ZOOM** buttons to find a suitable degree of magnification. Don't worry too much about being very accurate, as this is non-destructive editing - you can always use **UNDO** to go back and have another go, or adjust the edit later.

You will see that you have now divided the EDL Entry "Voice" into three. To complete the edit you need to remove the middle Entry, (between the two razor cuts you have just made) and join up the remaining bits.



CUT TO PASTE

Select the middle Entry by clicking on it, turning it red, and press **CUT TO PASTE**. It will be removed from the EDL and, if you have **SLIP** on as suggested, the following Entries will be automatically moved forward to butt up to the first one. Play over the edit. If you don't like it, press **UNDO** (two or three steps) and do it again.

NOTE: Although you have just deleted an Entry from the EDL, no audio has been lost from the system. The original Track is unaffected - you have just removed the instructions to play that part of it in this particular EDL.



On the hardware controller the **SCRUB** button toggles the scrubwheel through **jog**, **shuttle** and the normal move cursor modes, as indicated by the LEDs to the right of the wheel. Choose jog or shuttle, use the wheel to locate your two edit points and press **RAZOR** to mark a cut at each. Then move the cursor over the Entry now formed between them, press **EDIT/SELECT** to turn it red and **CUT** to remove it. Keep **SLIP** on, so that the gap is automatically joined up. Move the cursor back with the wheel and **PLAY** over the edit. If you don't like it, **UNDO** (up to three steps) and do it again.

That's all there is to cut-and-splice editing with SADiE. Do a few more edits to get the hang of it, but leave some until later when we'll try another method.

After all that editing, save the Project again.


ADJUSTING EDITS


Play through the edits you have done so far. Let's just pretend for a moment that you are not yet God's Gift To Hard Disk Editing and there is an edit that you'd like to tweak a bit. To do this you need to go into Playlist Editing mode:



Press the PLAYLIST EDITING MODE button on the Playlist toolbar and select the earlier of the two Entries at the edit point to be adjusted. The AUDIO SCRUB button in the Transport Controls needs to be down if you want to hear the edit as you adjust it.



Position the mouse over the Entry just before the edit, so that its pointer changes to a  symbol, then click and scrub with the mouse - you can jog or shuttle, just as you did over the scrubwheel. Adjust the out-point (the "left hand" side of the edit). The Entry being adjusted turns a brighter red.

Now select the Entry after the edit, get the  symbol and scrub to adjust its in-point (the right hand side of the edit).



Listen to the result by playing over the edit in the normal way, or by using the PLAY THROUGH edit preview button in the Transport Controls.

NOTE: Whilst making adjustments, it is sometimes helpful to listen to just one side of an edit. You can do this with the PLAY TO and PLAY FROM edit preview buttons.

You can now adjust other edits by selecting the Entries before or after them and scrubbing with the appropriate mouse symbol.



Come out of PLAYLIST EDITING MODE by releasing the button.



Using the hardware controller, first find the edit you want to adjust. This is, as always, the join between two EDL Entries.

Check that the EDL/SOURCE button in the top row is selected to source (light on). This will mean you are editing radio-style rather than working to picture sync. (For more detail, see Chapter 5, *Editing*.) Make sure SLIP is still on.

First we will work on the left hand side of the edit, which means adjusting the out-point of the left hand Entry, so select OUT. The in, hot and out edit point buttons are directly above the wheel - the "hotspot" is covered in *Editing*.

With the wheel, position the current-time cursor over the left hand Entry and press EDIT/SELECT. Because you have selected an edit point, SADiE will automatically go into Playlist Editing mode as well as selecting the Entry.

Select jog or shuttle mode with the SCRUB button and adjust the out-point with the wheel.

Now press NEXT. This will select the in-point of the next Entry (i.e. the right-hand side of the edit). Adjust it with the wheel.

Listen to the edit by pressing the PREVIEW button, adjust the two sides if necessary.

Press EDIT/SELECT again to turn Playlist Editing mode off, thus confirming the edit, or use NEXT or PREVIOUS to move to other edits.

BOTH AT THE SAME TIME!

The swots in the front row of the class may have realised that you can use the above method of adjusting edits to remove the unwanted material in the first place.

- Listen to more of the speech. As soon as you hear the next mistake which will need editing, make a single razor cut. This can be done on the fly during playback, or whilst shuttling through. The initial cut doesn't have to be accurate as you are going to adjust it straight away.
- Stop playback, if necessary.
- Go into Playlist Editing mode and adjust the out point (left-hand side of the edit) as before.
- Now go to the right hand side of the edit by selecting the next entry. You can lose all the unwanted audio by slipping it "into the cut" as you **shuttle** along to find, and set, the in-point exactly as described above. Remember playing tape out onto the floor? It's just like that, except you don't have to worry about treading on it.

Use whichever method you prefer to do the rest of the edits in the speech. It is easier to remove very small bits (de-umming, for instance) with Playlist Editing.



NOTE: For hardware controller users it is generally safest to confirm each edit by pressing EDIT/SELECT to turn Playlist Editing off. You are then free to use the wheel without spoiling the last edit.

If you do leave Playlist Editing mode on, you will find that each time you do a new RAZOR-cut, you should immediately select the OUT point (on the Transport Controls or hardware controller). This will position the cursor at the new edit point.

Lastly, you can "top and tail" the speech by using Playlist Editing to trim the in-point of the first Entry and the out-point of the last.

Save the Project again.

NOTE: It is worth noting that the original, unedited, Tracks that you recorded are always available in the Clipstore. Restore your Clipstore window to normal size and you will see them in a folder labelled "Source Tracks Folder".

So, if you wanted to start the editing exercise all over again, you could take originals out of the Clipstore. This is covered in chapter 7, *File Management*.

MIXING IN THE MUSIC

You should now have an EDL Entry called “Music1”; another called “Music2” and lots of Entries called “Voice” as the result of your editing. Although not essential, for this exercise it is a good idea to group all the “Voice” Entries together. First select them all. You can do this by dragging across them with the mouse, but perhaps it would be easier to select all the Entries in the EDL and then deselect the two music ones:

- Click on “Edit” on the menu bar, then “Select All” (or press Alt, E, S on the keyboard).
- Deselect the two music Entries by holding Shift on the keyboard while clicking on them with the mouse. (On the hardware controller make sure no in, hot or out edit points are selected, position the current-time cursor over the Entries and press SHIFT + EDIT/SELECT.)



Press **GROUP SELECTED EDL ENTRIES**. They will be redrawn as a single block in the Playlist and can therefore be moved around together easily.

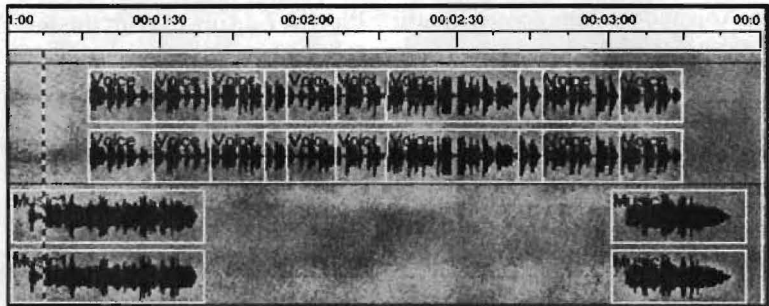
NOTE: Groups will always appear as blocks, rather than profiles, as they may consist of Entries overlapping each other.

Now move the music Entries to Streams 3&4 so you can control them with separate faders:-

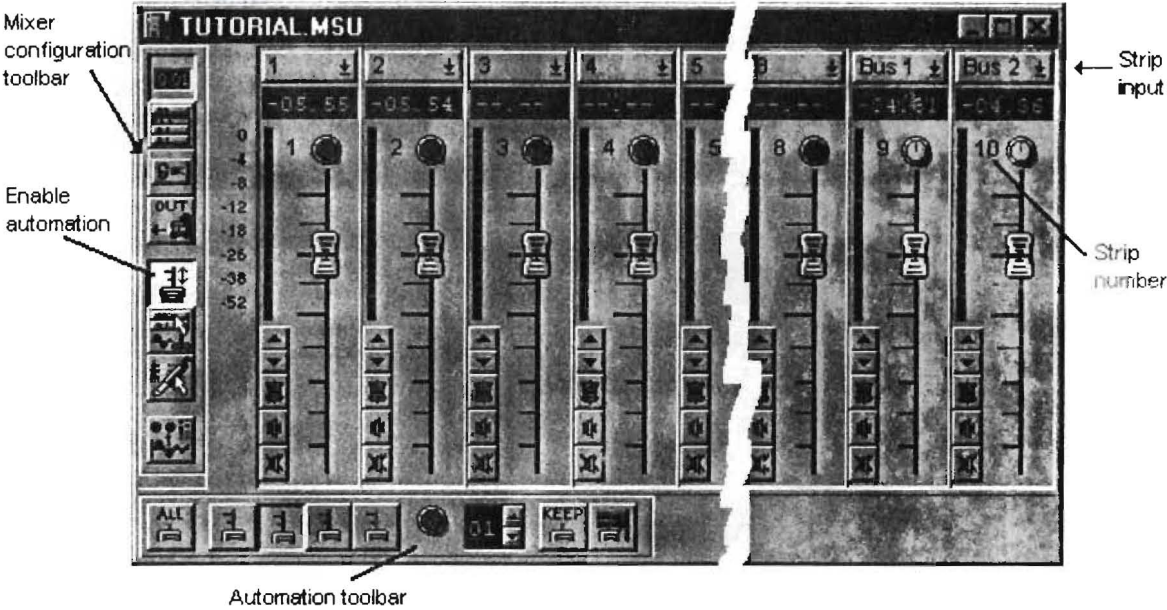
- Turn SLIP off, as you want to move them without moving the speech.
- Select the two entries and use Ctrl + ↓ on the keyboard or ASSIGN + F2↓ on the hardware controller to move them down to Streams 3&4.
- Position them so that the EDL starts with “Music1”, then the edited Voice group, starting before “Music1” ends, and finally “Music2”, starting before the speech begins.



At any time you can break a group back down into its component Entries by selecting it and pressing the **UNGROUP** button. Do this now to view the profile of the speech again.



If you play your EDL now, the levels will quite obviously be wrong, as the music will drown out the speech where they overlap. Time to do a mix.



The **Mixer** works just like a studio mixing desk with a multitrack tape machine. The default Mixer you have on screen contains a channel strip to control each Stream and two more acting as stereo masters by controlling the Mixer's **internal busses** 1&2. So this Mixer's routing arrangement is:

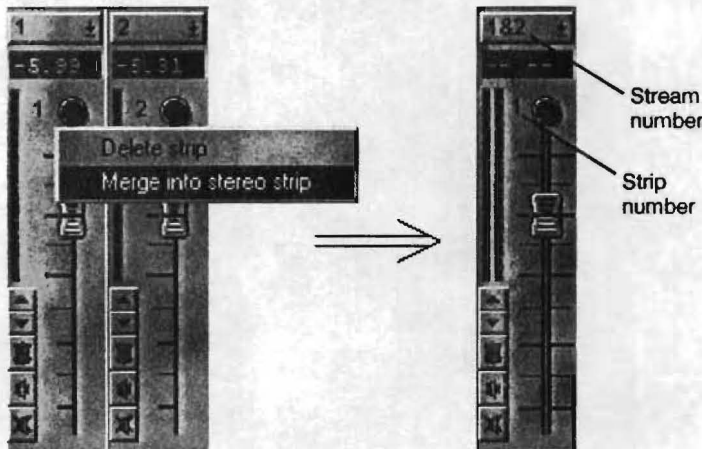


NOTE: An internal bus can be thought of as a subgroup within the mixer.



With the mouse, it is easier to have a single fader controlling both channels of audio for the stereo Entries, so let's create stereo Mixer strips to go with the merged Playlist Streams:-

- Right-click on Mixer strip 1, just above the fader, and select "Merge into Stereo Strip". This will combine two separate Mixer strips into a single stereo one controlling Streams 1 & 2



- Repeat to merge the strips controlling Streams 3 and 4 into a Stereo strip. Note that the strip numbers are now different from the numbers of the Streams that they control.



If you are using hardware controllers, merging strips is perhaps less necessary as you have the added dexterity of separate fingers on separate faders. However merging streams does give you "more" faders on the panel.



ENABLE AUTOMATION



KEEP MODE

Press the ENABLE AUTOMATION button on the Mixer configuration toolbar.

Make sure that the Mixer is the active window (coloured title bar). If not, use the WINDOW button. Then hit AUTO to enable the automation.

The automation toolbar will be added to the Mixer.

For this tutorial, make sure that the KEEP button is down, as this will let you try just one automation mode.

Play the Playlist from just before Music1. As you see the first words of the speech coming up you can fade down Streams 3&4 for a voice-over, and finally fade out the music completely.

Play over that section again: your fader movements will be reproduced and your mix replayed.

NOTE: Because the fader movements you make are being recorded as changes to the EDL, you can use UNDO to go back a step and do the first mix again, or improve on it by playing it and making small adjustments.

Go to the end of the Playlist and do a mix to fade Music2 in under the last words of the speech.

When you are (reasonably) satisfied with the result, save the Project again. This will save all the components of the Project - i.e. the EDL, with its editing, Stream layout and fader automation; and also the new Mixer layout.

NOTE: Each time you save the EDL within the Project, you are overwriting the previously saved version. If you want to be able to return to an earlier version of an EDL, you need to save the new one with a different name. To do this, make the Playlist active and select "Save As" from the File menu. You can then type in a different name, thus creating a second EDL within this Project.

When you make any File command, the type of file to be opened, closed, or saved is determined by which window is active.

THE FINISHED PRODUCT

If you are pleased with what you have done, you can dub it onto another medium - say a DAT or ¼" tape - by playing the EDL and recording from SADiE's digital or analogue outputs 1&2.

If you choose to use SADiE's digital outputs, you may need to set the digital output format:


- In the menu bar, choose View | Setup Window. From the list on the left, double-click on "Audio" and select "Further Audio Settings".
- In the "Output Format" section, select SPDIF or AES/EBU to match the format required by your recorder's digital input.

NOTE: On XS/XACT systems, the selected format is actually available on both the XLR connector on the Breakout Panel and the phono (RCA) socket on the rear of the computer, although it is standard to use the XLR for AES/EBU and the phono socket for SPDIF.

SHUTTING SADiE DOWN

It is important to shut down the software correctly and only turn off your computer when you have done so. If you simply turn off the power when SADiE is running, you risk losing work or even damaging the audio disk.

If you are using Windows® 3.1:


1. Close the SADiE main window by
 - double-clicking on the  box on the left of SADiE's main window title bar - or
 - selecting "Exit" from the File menu - or
 - pressing Alt + F4 on the keyboard.

SADiE will warn you if there are any EDLs, Clipstores, Projects, etc. that have not been saved since they were last altered.

2. You will now be returned to Program Manager (if you have any other applications running, use Alt + Tab to switch back to Program Manager). Close Program Manager in the same way.
3. You will be asked if you want to end your Windows session. Click OK.
4. When the screen goes blank, with "C:\>" displayed, it is safe to turn off the power.

If you are using Windows95:

1. Close the SADiE main window by

- clicking on the close button  on the right of SADiE's main window title bar.
- double-clicking on icon on the left of SADiE's main window title bar - or
- selecting "Exit" from the File menu - or
- pressing Alt + F4 on the keyboard.

SADiE will warn you if there are any EDLs, Clipstores, Projects, etc. that have not been saved since they were last altered.

2. Click on the "Start" button on the Windows95 taskbar, select "Shutdown" and "Yes" to shutting down the computer.
3. Windows95 will tell you when it is safe to turn off the power.

2 - RECORDING

OVERVIEW

NOTE: IMPORTANT! If you want to be able to return to using SADiE™ version 2.2 for any reason, don't format your audio disks to SADiE3 standard. SADiE3-formatted disks cannot be used with v2 software. SADiE2-formatted disks can be used with either, although you will lose certain v3 features. See the File Formats section in chapter 7, and the note on multi-channel Tracks below.

When you record a Track (SADiE's name for an audio file) you are always recording directly to one of your SCSI disks. There are two ways of doing this. If you record using the Playlist and Transport Controls, SADiE will place the Track as a Playlist Entry in sync. with the position of the current-time cursor during recording. This is like recording to a multitrack tape machine. Alternatively, you can use the Background Recording window which doesn't place the Track in a Playlist, but actually lets you work on and replay another Playlist while recording. In either case, the Track will always be available in the relevant Clipstore's Source Audio Tracks folder, or available to be imported into the Tracklist of any Project, so that you can paste it into any Playlist.

MULTI-CHANNEL TRACKS

SADiE labels Tracks that you record in one of three ways: Mono, Stereo, and Multi-channel. Multi-channel Tracks are made up of individual mono or stereo parts.

For example, using **octavia**, you might want to record eight-channels of drums, from a stereo pair of overheads and six individual mono mics. The resulting multi-channel Track will be made up of one stereo and six mono parts. As a single Track, it will be treated as a whole when moved around the system, but the component parts are accessible by opening up the tree structure in the Clipstore, or using the UNGROUP button.

The parts of multi-channel tracks are identified by the name of the Stream to which they were recorded - so you may want to rename Streams before recording (see Chapter 4, *Arranging an EDL*).

NOTE: SADiE version 2 did not support multi-channel Tracks. If you record them to SADiE2-formatted disks, next time you start SADiE they will appear as separate mono or stereo Tracks. You will then have to place them in Playlists at the same start time, and group them before moving them around.

RECORDING TO THE PLAYLIST

NOTE: If you have already been using a Playlist and now want to record unrelated material for different work, you may want to open up a new, empty Playlist to record into. This can be done under the File menu. However, it is more useful to create a new Project - this will give you a new Playlist and set you up for keeping track of all your work. See Chapter 7, *File Management*.



1. Open the Record section of the Transport Controls.
2. Press **SETUP** which takes you directly to the Audio section of the main Setup window, so that you can check or change:-
 - The input source that you are recording (AES Digital, SPDIF Digital, Analogue or Optical digital). Depending on your hardware, some of these options may not be available.
 - The input sample rate and resolution.

NOTE: With analogue input, the sample rate and resolution will determine how the signal is converted to digital audio. XS/XACT converters are limited to 16-bit, **octavia** system converters can convert at 20-bit resolution. Of course, you can use external converters to convert an analogue signal to other sample resolutions before being feeding it to SADiE as a digital input.

With digital input, SADiE's sample rate needs to match that of the input signal, otherwise your material will play back at the wrong speed, and the profile will not line up with the audio. **SADiE will warn you if the current sample rate does not match that of the incoming digital audio. The sample resolution can be set lower than that of the digital input signal, in which case the extra bits will be discarded.**

3. Enter a name for the Track you are about to record by clicking in the white Track name box. Finish with the Enter key (↵). On SADiE2-formatted disks you are limited to 8 characters.
 - The **AUTOTAKE** button adds a two-character take number to the name and this number increases automatically each time you enter record. This saves you retyping a name each time when you are recording multiple takes. For the purposes of this manual, we are assuming that you have autotake ticked, so that if you go into record repeatedly, there is no need to type a new Track name. If you don't have autotake set, when you go into record and the current Track name exists already, you will be warned and will have to change the name in order to carry on recording.

- The RETAKE button lets you delete the last take and so keep the take number for the next attempt.
 - PROPERTIES brings up a box showing details that will be stored with the Track, some of which you may want to enter or change at the time of recording. See the next section for a description of each.
4. Check that the RECORD SOURCE button for each Stream that you want to record onto is set correctly.



- You can change the recording source by pressing the button and selecting from the drop-box that appears.
- Normally you will be recording direct from the system's physical **inputs**, but you can also record from the outputs of Streams, internal busses, or the whole system. This enables you to "bounce-down" material in SADiE, or use a Mixer channel strip to apply EQ, dynamics processing or digital level control to the input before it is sent to the recording Stream. (See the Routing section in Chapter 6, *Mixing and Processing*.)



5. Press the RECORD ENABLE buttons on the Stream(s) you want to record onto.
- If you have "E to E" selected in the Mixer section of the Setup window, you will now be able to monitor and check the level of the input signal. See "Recording Levels", below.

NOTE: With the "Number of channels" set to "Auto" in the Properties box described below, the number of Streams enabled will determine the type of Track:-

Recording onto one mono Stream creates a mono Track.

Recording onto a stereo Stream creates a stereo Track.

BUT recording onto two mono Streams creates a 2-channel Track. If you are using v2 disks these will appear as two separate Tracks after restarting SADiE.

Recording onto one stereo Stream and six mono Streams will create an eight-channel Track made up of one stereo and six mono parts. See "Multi-channel Tracks", above.

N.B. If the material you are recording into SADiE is mono, don't record it as a stereo Track, otherwise you will be using twice as much disk space as necessary.



6. Press RECORD to start recording immediately, or play the Playlist (you will be in record-standby and the record button will flash) and hit RECORD to drop in ("punch-in") on the fly (see "Dropping in", below).
- Pressing PAUSE before you press record will put you in record-standby mode, with input monitoring. If you press PAUSE while you are recording the current Track will end. A new one will begin when you release the pause button again. The small time display at the bottom of the Transport Controls shows the DURATION so far of the Track being recorded, or the amount of REMAINING time available on the relevant audio disk, depending which button is selected above it.



7. Press STOP to stop recording.

TRACK PROPERTIES

The **Properties** box displays, and allows editing of, information that will be stored with each Track. After recording, it can be accessed from the listing of Tracks in the Disk Management or Project window.

- **Format:** You can select the file format of the Track to be recorded here. See the File Formats section of chapter 7, *File Management*. If you leave this set to **Native**, SADiE will use the recording format appropriate to the formatting of the disk being used.
- **Number of channels:** When set to "Auto", recording onto stereo Playlist Streams creates stereo Tracks (or parts of multi-channel Tracks) and recording onto mono Streams creates mono Tracks (or parts). You can override this by setting "Stereo" or "Mono" manually.
- The **Reel Name** and **Track Number** boxes are used when Autoconforming - described in Chapter 8, *Specific Applications*.
- The **Start Time** and **Length** are for later display only.
- The **Sample Rate** and **Resolution** will normally follow the input settings in the Setup window. However, you can set this Track to be recorded at a lower sample resolution than the current input setting.

NOTE: You can record with varispeed on, but only if you are recording analogue. This may be useful for performing frame-rate conversion using the 24/25 and 25/24 pre-sets.

- Selecting half (or quarter) **Quality** level causes only one out of every two (or one out of every four) samples to be recorded, thus effectively halving or quartering the sample rate. Used when recording or bouncing down to produce WAV files.
- **Emphasis** sets either of the two standard emphasis flags for the Track.
- The **Backup** references for the Track will be displayed in the Tracklist in the appropriate Project window - see the section on Archiving in Chapter 7, *File Management*.
- **Comments** can be entered for the Track, if recorded to a SADiE3-formatted disk. These will then be displayed for later viewing of the Track Properties box.

RECORDING LEVELS

The meters on the Mixer strips for the relevant Streams and output busses show the level of the signal at SADiE's inputs when their faders are at normal settings (0.0dB). Mixer strips that are being used to control inputs show the input level regardless of fader position. There are overload margin indicators at the top of each meter to show the accumulated peak level. Reset them by double-clicking on their display.

If you do set up a Mixer strip to control the system input (as described in the Routing section of Chapter 7, *Mixing and Processing*), it is possible to apply digital level control to the recording. However, this control is after the analogue-to-digital converters, so any adjustments necessary to analogue input signals in order to avoid overloading or under-modulating the converters must be made externally (e.g. on your mixing desk).

Adjusting the fader of a such a Mixer input strip will affect the level recorded on the audio disk. Note that you can overload the recording if you increase the level, so watch the meters. You can't improve a noisy signal that results from converting analogue at too low a level.

If you don't apply any input level adjustment, digital input signals will be optimally transferred as 1:1 copies.

RECORDING IN NON-REAL TIME

Certain recording operations - such as internal bouncing down with processing - are not restricted to real-time operation by the need to work at the same rate as the equipment supplying the audio input. When NON-REAL TIME is selected, these tasks will be carried out as fast as possible. Of course, if you want to listen to the audio as it is recorded, you must work in real time.



MAKING CUTS DURING RECORDING

The RAZOR-CUT and SCISSORS buttons will work during recording, dividing the Entry that is being placed in the Playlist. This can be a useful way of marking edit points that you will need to return to later.

If you operate the PAUSE button during recording, you can “edit-out” the incoming signal until you release it again. Recording will resume as a new Track, so you must use Autotake, otherwise SADiE will assume you want to re-record using the previous Track name.

Note: Razor cuts can be made automatically when reading DAT IDs - see *Chapter 8 Specific Applications; DAT & CD IDs*

OVERDUBBING

When you record into a Playlist that already has EDL Entries in it, these will be replayed. So you can, for example, record a singer on Stream 3 in sync. with - and listening to - a stereo guitar already recorded on Streams 1&2; or a voice-over on Stream 1, while hearing a music bed already on Streams 3&4. You can even use the automation to record a mix of the level changes to the music bed while you record the voice-over. When overdubbing, you will probably want to drop into and out of record as described below.

DROPPING IN AND OUT OF RECORD

Once you have record-enabled your chosen Stream(s), you can drop into record (or “punch-in”) manually as follows:

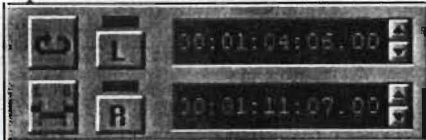
1. Play the EDL from any point (the Record button will flash red to indicate that you are in record-standby). You will not be monitoring the input, unless you have selected E-to-E mode in the Mixer section of the Setup window.
2. Hit the record button when you want to drop in. If there is an EDL Entry on the Stream at this point, SADiE will replace it with an Entry of the new recording up to the point where you...
3. Drop out by pressing the play button again.

NOTES: As this is non-destructive, the underlying recording has not been erased. It is still available by using Undo, when using any of SADiE's editing modes or returning to a previously saved EDL - and the whole Clip or Track can still be found in the Clipstore. If you don't want to replace an EDL Entry, record on a different Stream.

You cannot use the record-enable buttons on each Stream to actually drop in. These must be pre-set, and the record button used to do the drop.

Automatic drop-ins (or “punch-ins”) can be set up as follows:

1. Open the L-R locators section of the Transport Controls:



2. Set the Left and Right locators to the points you want to drop into and out of record. There are several ways you can do this:
- Click on the L and R buttons to set them to the current time, either on the fly during playback, or when stopped. The red indicator will show that a point is stored in the button memory. The time displays show the EDL time set. Or:
 - Hold the **Shift** key and click at the required point in the Playlist time bar. Use the left and right mouse buttons for L and R points respectively.

Once set, clicking on a button will locate to that point (not allowed during playback) and markers will appear in the Playlist time bar to show the position of each. Dragging these with the mouse will adjust the points. Other ways to adjust them are described in Chapter 3, *Using the Playlist*.



3. Press the **DROP-IN** button. Once you have record-enabled your chosen Stream(s), when you play the EDL, SADiE will drop into record at the Left locator point and drop out at the Right.



Pressing **LOOP** causes playback to repeat between the left and right locator points. In the Transport Controls section of the Setup window (accessible from the View menu), you can set pre- and post-roll times. These determine how much of the EDL SADiE plays either side of the L and R points.

Thus you can repeat a section, recording in sync. each time, until you have the take you want. A new Track is created for each drop-in.

NOTE: SADiE actually records a second or two after any drop-out and a second or two before an automatic drop-in. These pre- and post- handles allow later edit adjustment.

Double-click on an L or R button, or click while holding the **Ctrl** key, to clear its memory.

BACKGROUND RECORDING

In many ways this is the quickest and easiest way to record a mono or stereo Track that you can then access from the Source Audio Tracks folder in the Clipstore. What’s more, you can carry on other work in a Playlist while the new Track is being recorded.

As with recording to the Playlist, described above, first make sure you have the correct settings in the Audio section of the main Setup window. This is accessible from the “View” menu or from the **SETUP** button in the Transport Controls.



1. Open up the Background Recording dialogue box from the "View" menu.
2. Enter a name for the Track you are about to record by clicking in the white Track name box. Finish with the Enter key (↵). On SADiE2-formatted SCSI disks you are limited to 8 characters.
 - The AUTOTAKE button adds a two character take number to the name and this number increases automatically each time you enter record. This saves you retyping a name each time when you are recording multiple takes.
 - The PROPERTIES button is described under Playlist recording.
3. Select whether to record a Stereo or Mono Track.

NOTE: If the material you are recording into SADiE is mono, don't record it as a stereo Track, otherwise you will be using twice as much disk space as necessary.

4. Press the INPUT selection button to determine which inputs you are recording from.
5. The MONITOR selection button determines what outputs you can monitor the recording on. Note that if you intend to play anything through your current Mixer while background recording, you cannot monitor the recording on the same outputs used for the Mixer.
6. Press START to begin recording.
 - Check the recording level on the meters. Any adjustments necessary to analogue input signals in order to avoid overloading the system's analogue-to-digital converters must be made externally (e.g. on your mixing desk).
 - Depending which you select, either the DURATION of the Track being recorded, or the REMAINING time available on the audio disk will be displayed in the small time display.
7. CLOSE the box and recording will continue in the background while you do something else.
8. To stop recording, open the window again and press STOP.
 - Alternatively, if you select SPECIFY LENGTH, you can use the time display below to enter the length of time that the recording is to last. It will then stop automatically.

TIME STAMPING

When recording into the Playlist, the position of the current-time cursor as you record indicates the “time-stamp” that will be applied to the Track. You can see the start time that is recorded in the Track Start column in the Clipstore. So, when you are recording in sync. - either by being synchronised to external equipment, or by overdubbing in sync. with other material in the Playlist - the new Track will always carry a record of its correct EDL position. If you move it, or store it in a Clipstore, it can always be replaced in a Playlist in the correct sync. by using the “Autoplace by Track start” function.

When background recording, the Track will be time-stamped from 00:00:00.

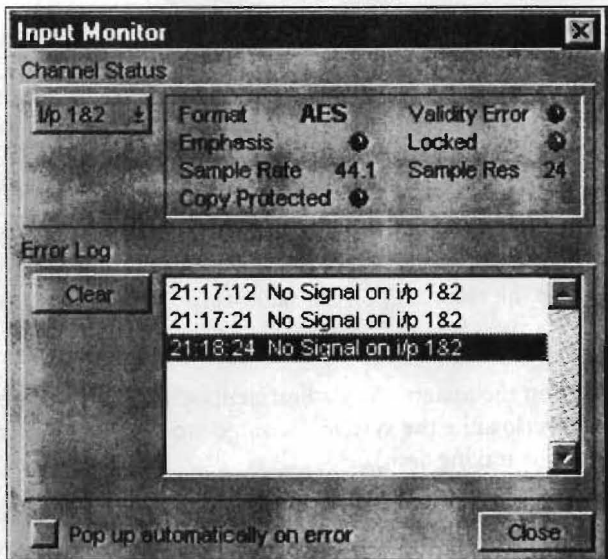
The Time-stamp of an entire track can be changed, using **RESYNC TRACK**. This is a permanent change, there is no way of undoing this process; this is potentially a very dangerous thing to do unless you are sure that you want to do it.

This function is found in the Entry menu by Right-mouse clicking on a single EDL entry. It works by changing the Track Start time of the Source Track so that the currently selected entry becomes perfectly in sync..

EDLs find the correct audio to play by searching the associated Source Tracks for the correct Entry Time range, and so if you change the timestamp you will change the Entry times. EDLs that reference the track you are resyncing will be adjusted to use the new Entry times BUT only if they are open when the resync track process takes place. If an EDL that uses the track is closed, it will have no knowledge of the sync change, and thus will play the wrong audio, or not be able to find the Entry time range if it now no longer exists.

For these reasons, the undo history is re-set when you resync a track.

INPUT MONITOR WINDOW



The Input Monitor Window reports on the state of the digital inputs to the system. On enabling a digital input , the top box of the window will display Channel Status information and the list below will log errors if and when they appear. The logging will tell you the time of day if there is no playback, or the EDL time if an error is logged during recording. If the error has an EDL time, double clicking on that line in the list will locate the EDL to the correct position.


If you tick 'Pop up automatically on error' you can hide the window and it will re-appear should anything need reporting.

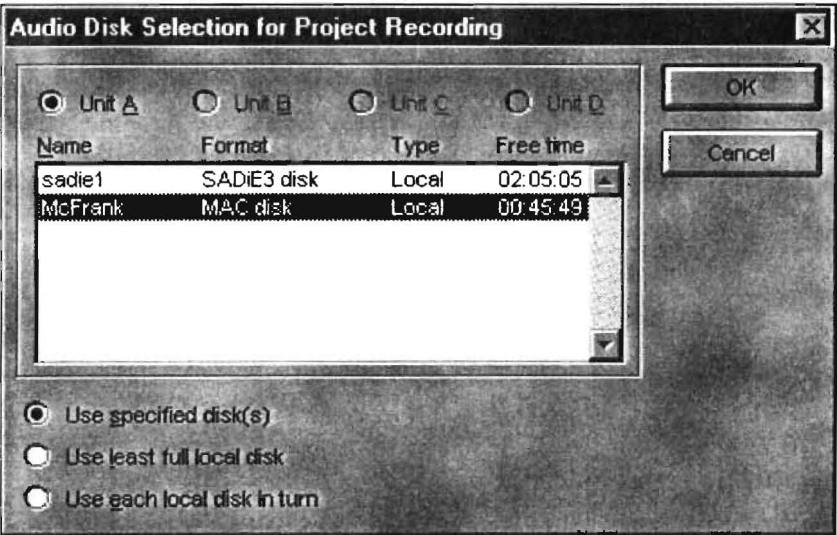
The Input Monitor Window can be accessed from the VIEW menu.

NOTE: Errors may be caused by poor connections or dropouts on digital tape and are often detected when DAT machines are in pause or shuttle modes.

CHOOSING A DISC FOR RECORDING

When recording, it's possible to record to one specified disk drive, to alternate disk drives when you record, or if you have a Multi-card system to choose a different drive for each unit.

When you start a project, with a system which has more than one disk drive, you will be offered the Audio Disk Selection Window. You can also see this window by pressing the  button on the Project Window toolbar.



This lists the recordable drives attached to your system.

This window will open up, defaulting to **Use specified disk(s)** and if you select a drive and press OK, then that will be chosen for every recording.

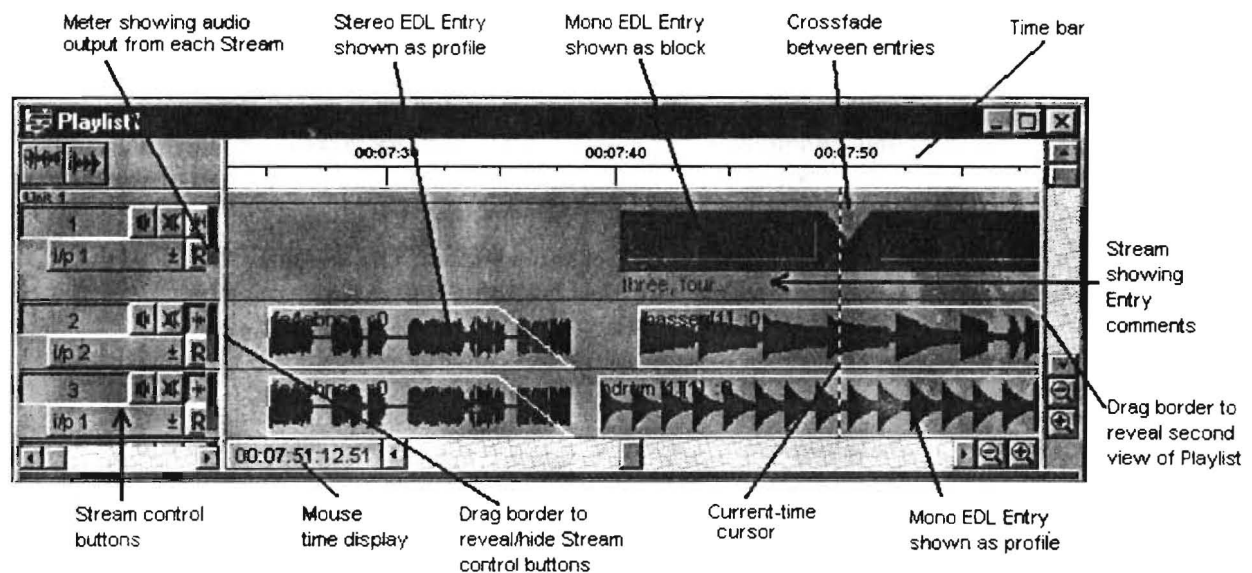
Use least full local disk allows you to record to whichever drive has the most space remaining.

Use each local disk in turn will choose a different drive for every track when SADiE goes into record. The number of tracks depends on how many streams are involved, how they are grouped (a stereo track is one track not two) and what file format you are recording to. So if for instance you are recording 8 tracks and you have 4 disks connected, then each disk will record 2 tracks, and thus the load on the disks is evenly spread. If your disks start to become full, for multi-track recordings, your maximum record time is the time remaining on the most full disk drive.

Tracks that are recorded at the same time are grouped together in the playlist and can be manipulated and edited as if they are one single, many-channel clip. You can separate these clips out and regroup them, as long as they are still in the same time relationship to each other. This applies to multi-unit and multi-disk recordings as well as those on single unit systems.(See also Chapter 12 - Multiple Audio Units)

3 - USING THE PLAYLIST

THE PLAYLIST DISPLAY



SHOWING ENTRIES AS PROFILES



The SHOW ALL PROFILES button in the top left-hand corner of the Playlist switches between displaying all EDL Entries as solid blocks and waveform profiles.



The small control button on each Stream does the same for that Stream only.

NOTE: The Stream control buttons can be revealed or hidden by dragging the border between them and the Streams themselves, or by using the scrollbar beneath them.



Function key F12 acts as SHOW ALL PROFILES.

There are 8 different types of waveform profile available, visually boosting different parts of the dynamic range. You can change the profile type from the Playlist menu to find one more suitable to the audio you are working with. Note that this only appears on the menu bar when the Playlist is the active window.

NOTES ON PROFILES:

- The profile display for higher zooms can be altered to suit your personal preference. As default, the higher resolution Horizontal zooms from zoom level 16 to 21 are drawn as a bar graph but there is an option in the Playlist Display Setup page (under the View menu, select Settings; Playlist; Playlist Display) - **Show Higher zoom waveforms as lines** which will display these as a point-to-point line graph.
- Depending on the performance of your pc, the profiles may update slowly when you are playing the playlist, particularly at the higher horizontal zooms above zoom 15. As default, when you press play whilst viewing at a zoom level greater than 15, the waveforms are not displayed again until you press stop, however you can choose **'Keep updating profiles when playing (slow)'** in the Playlist Display Setup, and SADiE will attempt to re-draw the screen whilst playing.

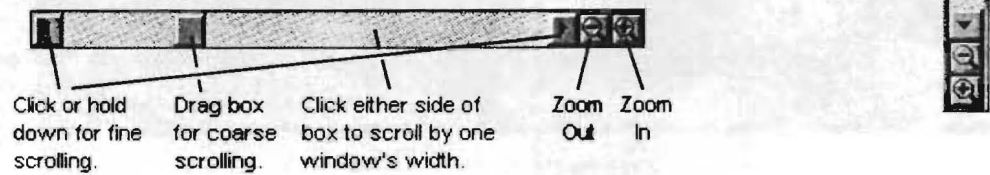
- The highest three horizontal zooms - zooms 22 - 24 are the only zooms at which you will be able to see single samples. These zooms are **always** drawn as point-to-point lines.

SCROLLING AND ZOOMING

When moving around the Playlist to access different parts of your EDL, you may want to change which part or how much of it is displayed.

To do this, you will either need to scroll it so that a different part is in the window, or change its magnification by zooming in or out of the display. Don't forget that you can also change the size of the whole Playlist window (see *Appendix A - Windows Basics*).

There are two Playlist scrollbars with attached zoom buttons. The one along the bottom of the Stream display scrolls and zooms horizontally so that you can view a later or earlier part of the EDL. The one at the right-hand side scrolls and zooms vertically so that you can reveal Streams that are not currently in view.



You can press the zoom buttons repeatedly, until you reach maximum or minimum magnification.

Alternatively, under the Playlist menu (when the Playlist is the active window), you can jump directly between different levels of horizontal and vertical magnification. These zoom menus are also available if you hold the CTRL key down when you click on the normal zoom buttons with the mouse.

Select ZOOM for horizontal magnification, SHIFT + ZOOM for vertical magnification, and adjust with the wheel.

Without ZOOM or CLIP, or STREAM selected and without Jog or Shuttle modes selected by the SCRUB button, the wheel will move the current-time cursor up and down the Playlist, which will scroll accordingly. In this mode, all the small LEDs by the wheel will be off.

NOTES: During playback you can zoom in or out, but you cannot override the automatic scrolling that keeps the current time on view.
The Playlist will always stay centred on the position of the cursor. Reposition it before zooming in, if necessary.
At the extreme settings of zooming out, all Entries are shown as blocks and not profiles.
If you want to quickly switch between two different vertical and horizontal zoom settings, save them in two different Desktops (see the Desktops section in Chapter 9, *Customising SADiE*). You can then switch between the Desktops by using the keyboard shortcuts to the Desktop menu:- Press Alt + D, followed by the number of the desktop file listed.

There is another way you can change the way the profiles on screen look. For instance if your audio is very quiet, the waveform on screen may be very small, or alternatively if the audio is very high level and not terribly dynamic it may look like a thick straight line. Under the Playlist menu, the Display Profile Mode option offers 8 alternative ways of viewing the profile - the high numbers will make lower level audio look 'fatter'. Type 1 is the default.

SPLITTING THE VIEW OF THE PLAYLIST

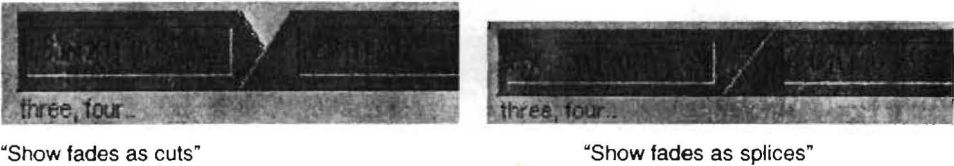
If you drag the right hand edge of the Playlist (inside the scrollbar) inwards, you can open up a second view of the Playlist that has its own zoom buttons, scrollbar and current time cursor. This could be useful if you want to jump back and forth between different places in the EDL or have one view in close and the other showing you a larger section. Using the mouse will switch between active views.

STREAM UNITS

Streams are grouped into units, which may be closed down or opened up for display by double clicking on the unit name. See "Unit 1" in the picture above, immediately above the name button for Stream 1. If the Mixer contains faders that control internal busses or physical inputs, there will be Streams in a separate "Mixer only" unit. This is to display and edit automation data for those faders - no audio Entries can be placed on these Streams.

FADE DISPLAYS

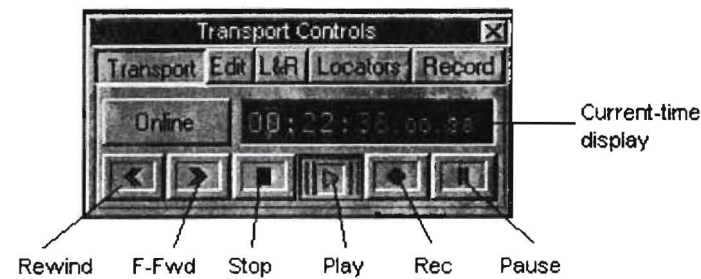
The Playlist Display section of the Setup window, described in Chapter 9, Customising SADiE, provides two options of which way up fade-outs, and so crossfades, are drawn:




DISPLAYING COMMENTS FOR EACH ENTRY

Right-clicking on the Stream also lets you show or hide any comments you want to associate with the Entry - "three, four" in the above example. The comments are written in the Clip Details Window described in Chapter 4, Arranging an EDL.

PLAYING THE EDL



The Transport Controls are a permanently floating toolbar, so they will always appear on top of other windows. You can hide them by clicking on their close button , and display them again from the View menu.

If you don't need the full Transport Controls, the status bar at the bottom of the screen can contain a simple Play/Stop/Current-time display version. To show it, from the View menu select the Setup window and go to the Status Displays section under "General".

The Transport Controls apply to the active window, so to play the EDL, the Playlist needs to be active (with a coloured title bar). If it is not, click anywhere in the Playlist or use the hardware controller's WINDOW button to select it.



The PLAY, STOP and PAUSE buttons in the Transport Controls are duplicated on the hardware controllers. Note that there may be a brief delay when pressing PLAY while SADiE™ compiles the current EDL.

PLAY and STOP are also activated by the spacebar on the computer keyboard.

PAUSE, when released, gives you an instant start.



PLAY is activated by double-clicking in the time bar (see Locating, below).

STOP is activated by single-clicking in the time bar.

The ONLINE button in the Transport Controls and on the hardware controller has two functions:

1. It enables timecode synchronisation (master or slave as selected in the Sync. section of the Setup window).
2. It enables 9-pin external machine control of any of up to four machines. These can be selected individually by right-clicking on the button. The 9-pin section of the Setup window sets which 9-pin channels these are connected to.

SOLOING AND MUTING STREAMS



Each Stream has its own control buttons on the left for soloing and muting individual streams. They duplicate the solo and mute buttons controlling those Streams on the Mixer strips or hardware controllers.



There is a MUTE button above each fader. SHIFT + MUTE is solo.

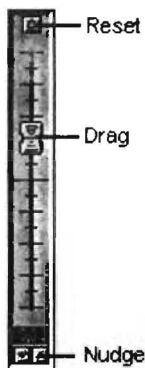
NOTE: Solo and Mute buttons are grouped when you group their faders in the Mixer (see Chapter 6, *Mixing and Processing*).

VARISPEED PLAYBACK

Use the View menu to display the Setup window, and then select the Audio section.



The Varispeed controls in the Sample Rate part of the window adjust the Record or Playback speed up to a maximum of plus or minus 10%. Whereas an analogue tape machine does this by varying the speed of the capstan motor, SADiE varies the current playback sample rate.



Varispeed is enabled by clicking on the check button and the speed is controlled by the knob below. Click and drag it up-down to adjust. A small fader will pop up to indicate the setting and the numerical display on the right will indicate the percentage speed change. Double-clicking keeps the pop-up fader on view and allows you to adjust it more finely (click on a grey bit of the window to lose the fader). You can also adjust the setting by entering a percentage value directly into the numerical display in any of the following ways:-

1. Click, hold and drag the mouse up or down over the digits on either side of the decimal point. Their value will increase or decrease - the more you move the mouse, the faster they change. Release to set the new value.
2. Use the up/down arrows beside the display to nudge its value by whole percentage points. Hold Ctrl to nudge by decimal points.
3. Double-click on the time display itself and directly type in a new value ending with the keyboard Return/Enter key.

You can now turn varispeed off and retain the setting for the next time you turn it on again.

The square button drops down a selection list of useful pre-set varispeed settings, for example to convert from 24 frames per second to 25 and vice versa. Select "User" to return to adjustment with the knob. It may be useful to do this during recording.

NOTE: As varispeed works by changing the sample rate, the digital output from SADiE will be non-standard and may not be accepted by other digital equipment, especially DAT machines. SADiE's Digital to Analogue converters will work from about 30kHz to 50kHz to produce a valid analogue output, although they may temporarily mute if you change the varispeed setting too quickly.

Varispeeding individual Clips or EDL Entries by amounts much greater than 10% can be done with the Resampling section of the Process window (see Chapter 6, *Mixing and Processing*).

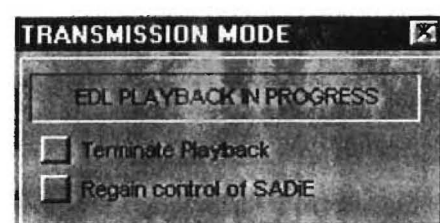
TRANSMISSION MODE

This is a means of locking out the keyboard and mouse to prevent accidents during an important playback.

To enter Transmission Mode, either

1. Hold Ctrl whilst starting playback in the usual way, or
2. Use the keyboard Hotkey that is set in the Hotkeys section of the Setup window after starting playback. The default is Alt + X.

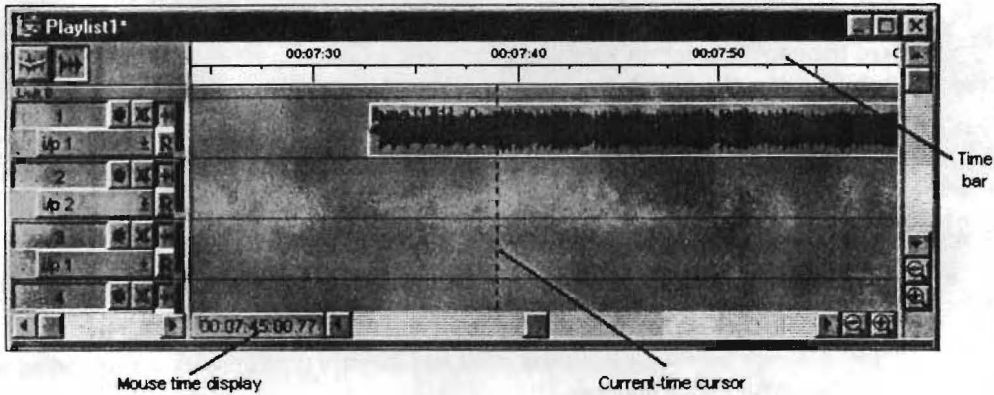
The following box will appear:



The only way to change anything now is to click on one of the two buttons.

LOCATING

There are several ways of locating the current-time cursor to points in the EDL:



USING THE TIME BAR

Double-click in the white time bar area at the top of the Playlist to start playback immediately from that point. The mouse time display will show the exact time you are pointing to.

Single-click anywhere in the time bar to stop playback.

Single-click in the time bar when playback is stopped to locate the current-time cursor to that point.

NOTE: Scroll or zoom out to access parts of the EDL that are not currently on view (see The Playlist Display, above).
You can also move around the Playlist using the Text EDL. See Chapter 4, *Arranging an EDL*.

USING THE CURRENT-TIME DISPLAY

Click, hold and drag the mouse up or down over any field of digits in the time display (i.e. the hours, minutes or seconds, etc.). Their value will increase or decrease - the more you move the mouse, the faster they change. Release to set the new value and locate the current-time cursor.

Or:



Double-click on the current-time display.

The box that pops up allows you to:

- 1. Directly type in the time that you want to locate to (or use the mouse cursor to drag across and overwrite only part of the displayed value). End with the keyboard Return/Enter key.
- 2. Click on "Zero" to Zero-locate, followed by "OK".
- 3. Use the up / down arrows to adjust the time. These nudge the lowest units. Hold the keyboard Shift to nudge seconds, Ctrl to nudge minutes. Finish with "OK".



DBL-CLICK TO
ZERO-LOCATE

USING THE TRANSPORT CONTROL BUTTONS

Double-clicking on the stop button is a useful and quick zero-locate.



RWD



F-FWD

The rewind and fast-forward buttons are latching, with the speed of wind increasing the longer they operate. Using the time bar as described above is usually quicker and easier for most operators.

USING HOTKEYS

There are two very useful default Hotkeys on the computer keyboard:

“Home” will locate to the start of the first Entry in the EDL.

“End” will locate to the end of the last Entry.

USING THE HARDWARE CONTROLLER



Without Jog or Shuttle modes selected by the SCRUB button, the wheel will move the current-time cursor up and down the Playlist. The scale of movement is related to the magnification of the Playlist, so use zoom if necessary (see The Playlist Display, above). The current-time display in the Transport Controls and the EDL time display on the hardware controller will indicate the exact time you are locating.

NOTE: To move the current-time cursor, make sure that neither ZOOM nor CLIP, nor STREAM modes are selected. The small LEDs by the wheel should all be off.

END will locate to the end of the last Entry in the EDL.

SHIFT + END will locate to the start of the first Entry.

LOCATING TO IN OR OUT POINTS OF EDL ENTRIES

The current-time cursor will locate to the in or out point (whichever button is down in the Transport Controls) of the previous or next EDL entry on any enabled Stream when you use these keyboard Hotkeys:

Select previous Entry (default is Ctrl + Alt + B).

Select next Entry (default is Ctrl + Alt + N).

See Chapter 9, *Customising SADiE*, for Hotkey settings.



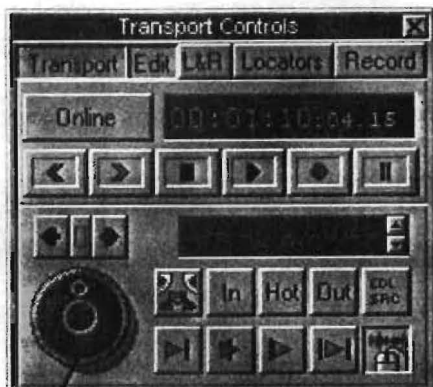
PREVIOUS and NEXT buttons do the same as the Hotkeys described above.

AUDIBLE SCRUBBING

To quickly search audibly through the Playlist:



Reveal the Edit section of the Transport Controls:



Scrubwheel

Click and hold the mouse button over the scrubwheel:

- Moving the mouse up/down gives you forward/reverse **shuttle**. The more you move from your original position, the faster it goes. This is like spooling tape against the heads.
- Moving the mouse right/left gives you forward/reverse **jog**. This is like nudging the reels back and forth.
- You can move between jog and shuttle modes without releasing the mouse button.



Select jog or shuttle mode with the **SCRUB** button. (Make sure you haven't got **STREAM CLIP** or **ZOOM** selected.) The LEDs next to the wheel indicate the mode. Then use the wheel!

FIXED SPEED SCRUBBING

There are hot-keys available for putting the Playlist (or Trim window, or clips in the Clipstore) into audible scrub at a fixed speed.

By default, these are set to be on the numeric key-pad of the keyboard (you must have Num Lock On), and three different fixed speeds can be set up at once. For instance Key 1 and 3 will play backwards and forwards at half-speed, 4 and 6 will do the same at normal speed, and 7 and 8 at double speed.

The key assignments are set in the usual *Hotkey* section of Setup, under *Transport - Edit Controls*.. The three speeds can be changed in the Setup page too, this time under the *Scrub Setup* sub-section of *Transport Controls*.

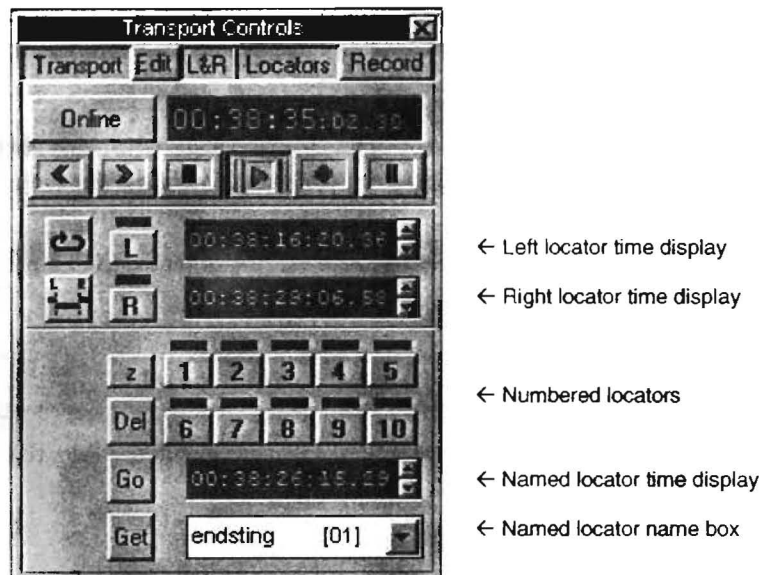
STORING AND RECALLING LOCATOR POINTS



The Transport Controls let you set up:

- A pair of Left and Right points for looping and drop-ins;
- Ten numbered locator points and
- Any number of named locator points.

Open the L&R and the Locators sections of the Transport Controls:

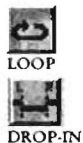
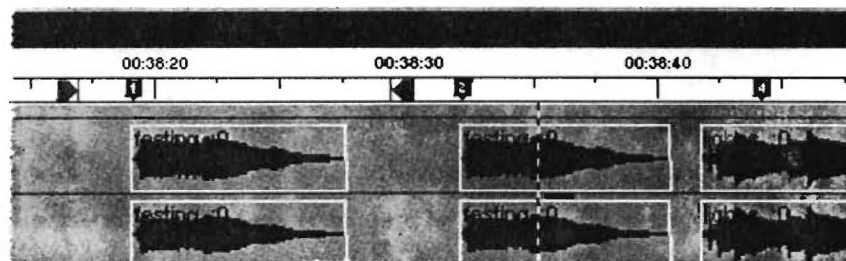


LEFT, RIGHT and 1-10 numbered locator points:

- These are set from the current time by clicking on their buttons. This can be done on the fly (during playback), or when stopped. The red indicator will show that a point is stored in the button memory. The L and R points have time displays to show their EDL times.
- The L and R points can also be set by holding Shift and clicking at the required point in the time bar with the left and right mouse buttons respectively.
- Once set, click on a locator button to locate to that point. (Not allowed during playback.) Clicking on Z will locate to zero.
- Double-click on a button, or click while holding the Ctrl key, to clear its memory.

NOTE: Shift + F1-F10 on the computer keyboard are the default Hotkeys for locator buttons 1-10.


Markers will appear in the Playlist time bar to show the position of these locator points:



Pressing LOOP causes playback to be repeated between the left and right locator points.

Pressing the DROP-IN button causes SADiE to drop into record at the Left locator point and drop out at the Right (see Chapter 2, *Recording*). The pre- and post-roll times for these are set in the Transport Controls section of the Setup window (accessible from the View menu).

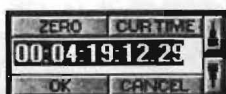
Named locator points:

- Click in the white name box at the bottom of the Transport Controls and type in a name ("endsting" in the above example).
- Each time you press GET, SADiE will store a locator point with the name you typed and a number added to it. E.g. endsting [01], endsting [02], etc. The EDL time of the point currently in the name box is displayed above it.
- You can type in a new name at any time and start storing points with that name.
- Press  next to the name box to drop down a list of all your named locator points and select the one you next want to locate. It will appear in the name box.
- Press GO to locate to the point in the name box.
- Press DEL to delete the locator in the name box. The next one in the list will replace it. Repeat to delete them all.

Adjusting stored locator points:

The Left, Right and currently displayed named locator can all have their values adjusted or reset by using their time displays in the following ways:

1. Click, hold and drag the mouse up or down over any field of digits in the time display (i.e. the hours, minutes or seconds, etc.). Their value will increase or decrease - the more you move the mouse, the faster they change. Release to set the new value.
2. Use the up/down arrows beside the display to nudge its value by the lowest units. Hold Shift to nudge seconds, Ctrl to nudge minutes.
3. Double-click on the time display itself.



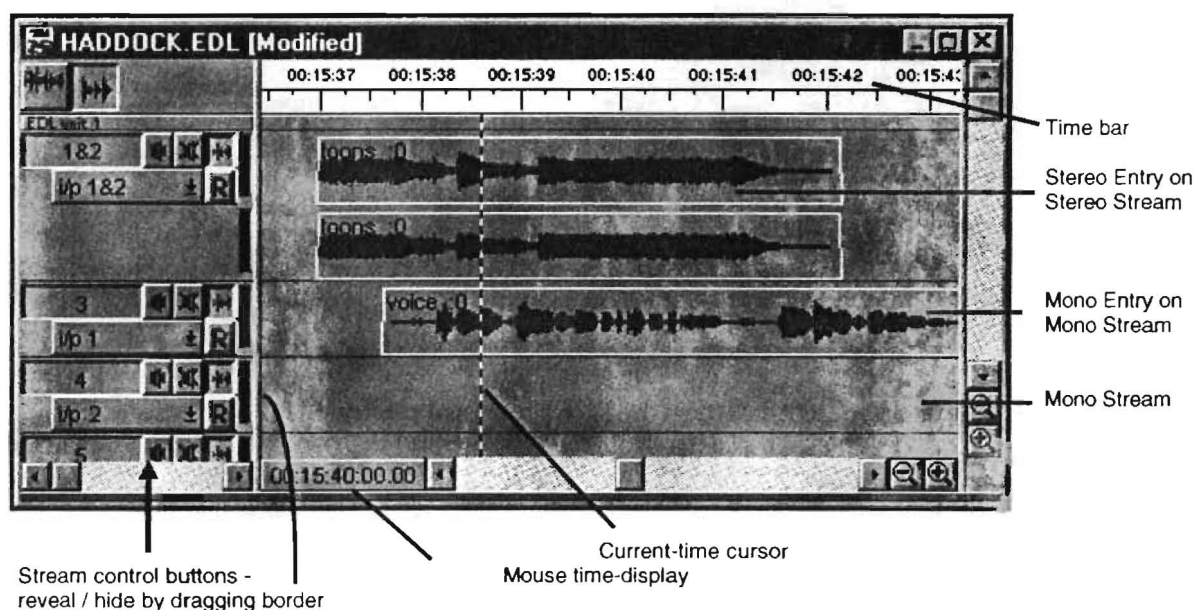
The box that pops up allows you to:

- Directly type in a new value (or use the mouse cursor to drag across and overwrite only part of the displayed value). End with the keyboard Return/Enter key.
 - Click on "Zero" to set to 00:00:00, followed by "OK".
 - Click on "Cur Time" to set to the current time, followed by "OK".
 - Use the up/down arrows to adjust the time, as in no. 2 above, followed by "OK".
4. The L and R locator points can also be adjusted by dragging their markers in the Playlist time bar.

On the hardware controllers press LOCATE followed by F1-F10 to set or go to locators 1-10, and LOCATE + F11 and F12 for the Left and Right locators. To re-set a stored locator point, press SHIFT + LOCATE + F1-F12

NOTE: Locator memories are stored with the EDL, and apply to only that EDL.

4 - ARRANGING AN EDL



The EDL in SADiE™ is like a word processor document: When you first switch SADiE on and create a new Project, the system will open a Playlist window containing an empty EDL named after the Project. You can then build up the EDL by recording directly into it, or by pasting in Clips from the Clipstore. Alternatively, you may open an existing Project and EDL to play back or do further work on.

NOTE: After making any changes in the Playlist, you will need to save the EDL. This is described in Chapter 7, *File Management*.

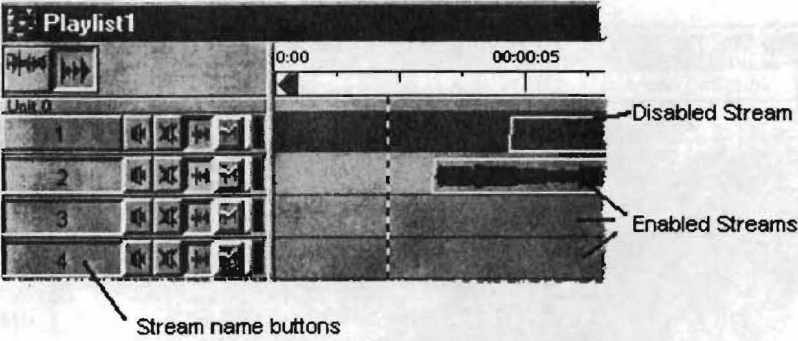
Whether you are rearranging EDL Entries that were not recorded in their final playback order, building an EDL from the Clipstore or creating different versions of the same material, you will want to move Entries around, add them to and remove them from the Playlist.

Where you place Entries horizontally in the Playlist determines at what time they are played back in the EDL. The choice of where you place them vertically - i.e. on which Stream they are placed - will depend on how you want to group them for control by the Mixer. It's very easy to move Entries around in time and between Streams, so you can always change your mind!

NOTE: You can place as many Entries as you like on top of each other on the same Stream, although this will not make them easy to view.

PLAYLIST STREAMS

ENABLING/DISABLING STREAMS



2

The Stream name button displays the Stream name and enables/disables that stream for the editing, SLIP and hardware controller operations described in the following sections. Disabled streams are shown darker grey. The Playlist will start with all Streams enabled. Holding the Shift key when clicking this button acts on the group of Streams above it that are all the same status. This is like using the Shift key to select items from a list in most Windows applications. Additionally there is a 'reverse' enabling function - if you hold the CTRL key when clicking the stream button, then this stream will be enabled and all other streams will be disabled.

NOTE: The border between the Stream control buttons and the Streams themselves can be dragged to the left or right to hide or reveal the buttons.



On the hardware controller select **STREAM** and use the wheel or **PREVIOUS/NEXT** to highlight a Stream, then hit **EDIT/SELECT** to enable/disable it. **SHIFT + EDIT/SELECT** acts on the group of Streams above it that are all the same status.

CHANGING THE LAYOUT OF STREAMS

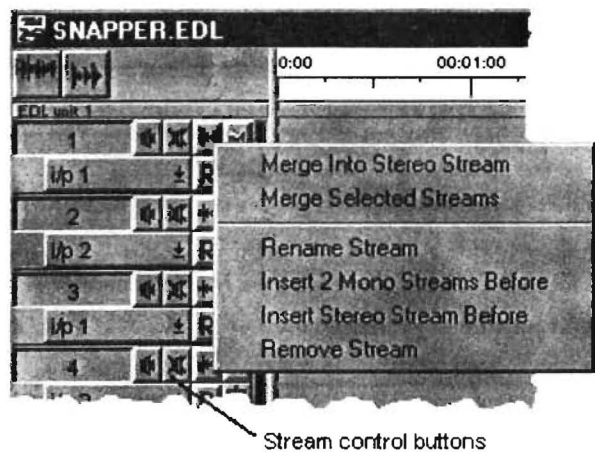
You may want more or fewer Streams than your current Playlist contains. There is no limit to the number of Streams a Playlist may contain, only to the number of Entries the system hardware can play back at the same time, with the required processing.

You can also merge any number of Streams so that they can be controlled together and reduced in height to save display space.

Stereo Streams can be added to the Playlist or created by merging two mono Streams. When you record onto a stereo Stream, you create a Stereo Track, whereas recording onto two mono Streams produces a two-channel Track. This will remain as two separate tracks on audio disks formatted under SADiE version 2. (See Chapter 2, *Recording*.)



Right-click over the small Stream control buttons:-



“Merge Into Stereo Stream” merges two adjacent Streams. (Odd numbered Streams are merged with the one after, and even numbered Streams with the one before.)

“Merge Selected Streams” merges all enabled Streams together.

“Rename Stream” is described below.

“Insert Streams” will insert a pair before odd numbered Streams or after even numbered ones, and renumber all Streams accordingly.

“Remove Stream” will remove the one you clicked on and renumber them.

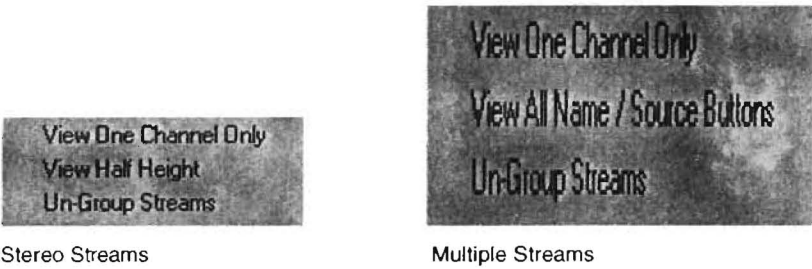
When Streams are merged, they retain separate channels of audio but are linked in the following ways:

- They have a single set of Stream control buttons, so they can be muted, soloed, enabled/disabled together. Merging Streams is also useful when recording multi-channel inputs into **octavia**, as you can use a single record enable button.

NOTE: The mute and solo buttons of merged Streams are linked to those of all Mixer strips to which they are routed.

- Automation data on merged Streams is edited together. Stereo Streams are therefore necessary if you want to edit automation data for left and right channels of stereo material together (see “Editing Fader Automation Data” in Chapter 6, *Mixing and Processing*).

Right-clicking on merged Streams gives you options to change how they are displayed and to ungroup them again:-



NOTE: Be careful if choosing to view one channel only, as there may be audio material coming up that you won't see.

A NOTE ABOUT STEREO ENTRIES:

Stereo EDL Entries can be placed on any odd/even pair of adjacent mono Streams as well as on stereo Streams. Audio editing will always affect both channels unless the Entry is deliberately split into two mono ones with the **UNGROUP** button described below. However, we recommend that you use stereo Streams in your Playlist for the following reasons:

- Recording onto stereo Streams creates stereo Tracks.
 - Mixer automation for stereo material is edited on both channels.
 - Single Stream control buttons are easier to use.
- A stereo Stream can be routed to either two mono Mixer strips or a stereo strip.

TEMPLATES

If you wish to save your customised Playlist to be used again, save it as a **TEMPLATE** (see *Chapter 9 Playlist and Mixer Templates*) under the **FILE** menu.

RENAMING STREAMS

2

The Stream name appears on the long name button on the left hand side. By default, Streams are labelled with ascending numbers, but you can change this to any 8-character name: Right-click over the small Stream buttons and select “Rename Stream”, type in the new name, followed by Return (↵). To avoid confusion, don’t give the same name or number to different Streams!

NOTE: The layout of Playlist Streams - how many merged Streams, single Streams and their names - is saved when you save the EDL displayed in that Playlist.
The Setup window allows you to specify the default arrangement of stereo and mono Streams when new Playlists are created.

MANIPULATING EDL ENTRIES IN THE PLAYLIST

RAZOR-CUT



The **RAZOR-CUT** button in the Playlist and **RAZOR** on the hardware controller divides the Entry under the current-time cursor on any enabled Stream into two at that point. This is primarily for editing, but can also be used to create a new Entry that you can then change in any of the ways described in the rest of this chapter.



SCISSORS

Mouse users have the option of using the “scissors” to make razor-cuts. Whereas the RAZOR button always cuts at the current-time cursor, when you press the SCISSORS button, the mouse-pointer will change into a dinky scissors icon with a cross to show the target point. You can then make a freehand cut anywhere in the Playlist - useful if you can see exactly where to cut from the waveform profile.

NOTE: With the Razor, if there are Entries at the cut point on other Streams and you don't want them to be cut as well, disable those Streams first. The Scissors function cuts only on the Stream the mouse icon is over, providing a useful shortcut to disabling Streams before using the razor blade.

Holding the Ctrl key whilst scissor-cutting cuts across all enabled streams.
Right mouse clicking while you have the scissors selected, disables them and returns the cursor to its normal “select” mode.

GLUE



GLUE

Any razor cut where no editing has been done to the Entries either side may be repaired: Press the GLUE button, position the cross-hair of the gluepot cursor icon over the join and click again.

SELECTING ENTRIES

To perform any function on an EDL Entry or Entries, they first need to be selected:



To select one Entry, click on it. It will turn red to show it is selected.

To select more than one, hold the Shift key whilst clicking on them.

To select adjacent Entries, click, hold and drag the mouse. You will see it draw a box as you move it vertically and horizontally. Draw the box to cover the Entries you want to select as a batch.

WARNING: Don't start the box on an Entry that is already red, or you will find you are moving it! Holding the Shift key whilst drawing the box will prevent this.

To select all the Entries in the EDL: Click on "Edit" on the menu bar, then "Select All" (or press Alt, E, S on the keyboard).

To deselect individual Entries, hold Shift whilst clicking on them again.

To deselect all Entries, click on a grey bit of a Playlist Stream.

NOTE: Selected Entries are red. Red is a warning! Once selected it is quite easy to move Entries by mistake, so always deselect them when you have finished.



To select Entries, do either of the following:

1. Position the current-time cursor over the required Entry (by using the wheel in the Move Cursor mode, i.e. with no other modes like Jog, Shuttle, Clip, Stream or Zoom selected) and press EDIT/SELECT. The button will cycle through selecting all Entries under the cursor on enabled Streams.

Pressing SHIFT and then EDIT/SELECT will let you select a second Entry.

Holding SHIFT down will let you select more than two Entries.

2. Select CLIP mode and use the wheel to cycle through selecting Entries on enabled Streams.
Pressing SHIFT before using the wheel selects multiple Entries.
Press CLIP again to exit this mode.
3. Press PREVIOUS or NEXT to select the previous or next Entries on enabled streams. If none are initially selected this will begin with the last or first Entry.
Pressing SHIFT and then PREVIOUS or NEXT will let you select a second Entry.
Holding SHIFT down will let you select more than two Entries.

To deselect individual Entries, position the cursor over the Entry, disable all lower numbered Streams, press SHIFT and then EDIT/SELECT.

To deselect all Entries, position the current-time cursor on an empty (grey) bit of the lowest numbered, enabled Stream and press EDIT/SELECT.

NOTE: When several Entries are already selected, selecting a single Entry will deselect the rest. So, for example, pressing NEXT will quickly deselect all other Entries.

RENAMING ENTRIES

Right-click over the Entry itself and select "Edit Entry Name".

NOTE: You can also rename Entries in the Clip Details window and the Text EDL. See the relevant sections later in this chapter.

CUT, COPY AND PASTE

These techniques can be used to remove, move and add EDL Entries in exactly the same way that text is manipulated in a word processor.

Entries are pasted into the EDL from a temporary store called the Paste Buffer. This can be loaded from the Clipstore to add new Entries to the EDL, but is also loaded with Entries that you cut (remove) or copy from the EDL. So you to can move Entries by cutting and pasting them in somewhere else and you can repeat them by copying them and pasting the copy somewhere else.

CUTTING (REMOVING) ENTRIES FROM THE EDL

Select the Entry/Entries as described above, then:-

Press CUT ENTRIES TO PASTE BUFFER.

Press CUT.

NOTE: The previous contents of the Paste Buffer are replaced each time it is loaded. If you want to remove an Entry from the EDL without it being loaded into the Paste Buffer, select it and press the keyboard Delete key, or right-click on it and select "Delete Entry". This may be useful if the Paste Buffer already contains something you want to paste in later.



COPYING EDL ENTRIES TO THE PASTE BUFFER



Select the Entry/Entries, then:-

Press COPY ENTRIES TO PASTE BUFFER.

Press COPY.

PASTING ENTRIES INTO THE EDL

NOTE: The Paste Buffer first needs to be loaded from cutting or copying EDL Entries as described above, or with a Clip from the Clipstore, (see below). It is also possible to load Entries to the Paste Buffer from the Trim Editor (see Chapter 5, *Editing*). If it is not loaded, its button picture will appear faint.



Press LOAD PASTE BUFFER TO CURSOR. When you move your mouse pointer (or cursor) over the Playlist Streams, you will see that it has changed to a reel of tape with a cross indicating where the in-point of the Entry/Entries will be positioned. The mouse time display will give you the exact EDL time. Click to paste the Entry/Entries into the Playlist.

NOTE: To cancel pasting and drop the paste symbol from the mouse pointer, press the button again, or right-click with the mouse.



Pressing the PASTE TO CURRENT TIME button will place the contents of the paste buffer into the playlist at the current time, exactly as with the PASTE button on the Hardware Controller. Under normal circumstances, this will be with the entries' start time to the current time, but of course, if autoplacement is on, then the autoplacement rules will be followed. (See *Autoplacement and slip later in this chapter*)



Use the wheel to position the current-time cursor to the time at which you want the Entry to start. (Make sure the wheel is not in Stream, Clip, Zoom, Jog or Shuttle modes - all the LEDs by it should be off.) The display in the Transport Controls, or the EDL time display on the controller will show the exact time.

Press PASTE to insert the Entry/Entries with their in-point at the current time.

NOTE: Multiple Entries cut or copied from the EDL will be pasted back with the same time and Stream relationships between them.
After pasting, the Paste Buffer is not emptied, so you can paste further copies as many times as you like.

PASTING WHOLE EDLs INTO ANOTHER EDL

The paste buffer can be loaded with an entire EDL that has been previously saved (see Chapter 7, *File Management*). On the menu bar, select File | Load to Paste. An "Open EDL" box will appear allowing you to select the EDL you want and then press OK.

The PASTE button will have been pressed for you so you can immediately paste the selected EDL into your current EDL. This is very useful for compiling work that you have built up in sections - for example, edited tracks compiled into albums, scenes compiled into reels.

MOVING ENTRIES AROUND IN THE EDL

1. Cut and Paste them back in at a new time, as described above.



2. Drag with the mouse:-

You can select Entries, and then simply drag them with the mouse to a new location or Stream. The Playlist will scroll automatically if you move the Entry near its edges.

NOTE: While you are moving the Entry, the mouse time display will change to show the start time you are about to set when you “drop” it.
Red is a warning! Once selected it is quite easy to move Entries by mistake, so always deselect them when you have finished.

3. Nudge them by small amounts left/right (earlier/later in the EDL) or up/down (to different Streams without changing in and out times and so maintaining sync):-

Press this button on the main Playlist toolbar to show the Autoplace toolbar.



The four buttons on the end of the toolbar nudge the selected Entry/Entries left/right/up/down. Each press of the left/right buttons nudges by a fixed amount. This can be set in the Playlist Nudge section of the Setup Window, which is displayed from the View menu. An alternative nudge amount is available by holding the Alt Key whilst nudging.

On the computer keyboard, Ctrl + the cursor keys (the ones with the arrows) duplicates these nudge buttons.



Function keys F1, F2, F3, F5 are also marked with arrows indicating that they duplicate the Autoplace toolbar nudge buttons when pressed after the ASSIGN key.

4. Use the Clip Details Window or the Text EDL to adjust their start times. See the sections on these later in this chapter.

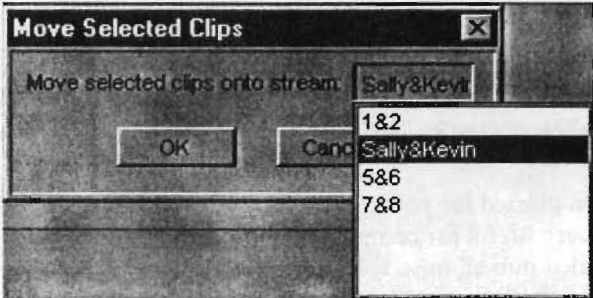
NOTE: You can also move Entries when using Playlist Editing mode (see Chapter 5, *Editing*).

CHANGING STREAMS FOR EDL ENTRIES

You may wish to move EDL entries to another playlist stream, without changing the EDL time. There are 3 different ways of achieving this.



- 1. If you hold the ALT key down while dragging and dropping entries with the mouse, the stream can be changed but the EDL time cannot.
- 2. The up and down buttons on the Autoplace toolbar (described above), change the stream of an entry, one stream at a time.
- 3. ‘Move selected clips onto stream..’ option in the Playlist menu, forces entries to a new stream.



Select the new stream from the drop-down list and whatever, and however many streams the entries were on previously, they will be moved, without changing the EDL time, to the new stream.

ADDING NEW ENTRIES TO THE EDL FROM THE CLIPSTORE



Click and hold on the Clip you want in the Clipstore and drag it (actually a “copy” of it) to the Stream and time that you want it to start in the Playlist. You will see that the mouse pointer has changed to a reel of tape, with a cross indicating where the in-point of the Clip will be positioned. Release the mouse button to paste the Clip into the Playlist. This does not use the Paste Buffer.



Or: Select the Clip in the Clipstore by clicking on it, press the **LOAD TO PASTE** button and then paste it into the EDL from the Paste Buffer. The Playlist **PASTE** button will have been pressed for you!



Use the **WINDOW** button to make the Clipstore the active window, then select the Clip you want either with the wheel or the **PREVIOUS/NEXT** buttons. Press **COPY**.

Return to the Playlist with the **WINDOW** button. **PASTE** the Clip into the Playlist as described above.

NOTE: You can place as many Entries as you like on top of each other on the same Stream, although this will not make them easy to view.

REPEATING EDL ENTRIES

To repeat one or more Entries, either:-

1. Copy them and then paste them in at a new point, as described above.



Or:-

2. Select them, then hold the Ctrl key whilst dragging a copy to the required position.

REMOVE GAP



This is a useful tool for moving any selected Entry to the left (i.e. forward in time) so that it butts up to the previous Entry on that Stream. The start of the selected Entry's fade-in will be changed to coincide with the start of the preceding Entry's fade-out.

On the keyboard this is available as a Hotkey. The default is F6.



Remove Gap can be set to a function key F1-F12. See Chapter 9, *Customising SADiE*. The default is F6

NOTE: The **SLIP** facility described below will automatically remove gaps left after cutting Entries from the EDL.

SNAP TO CURSOR

This is a very useful tool for synching up Entries. Right-click over the Entry you want to move and select either “Snap in-point to current-time” or “Snap Hotspot to current time”. The Entry will jump to a new position with either its Hotspot or its in-point on the current-time cursor. This is useful:

- On the fly whilst listening to music to run alongside speech. A voice Clip can be snapped to cursor during playback.

- After positioning the current-time cursor by double-clicking on the current-time display and typing a new value.
- After positioning the cursor by scrubbing with the Edit section of the transport controls, perhaps scrubbing to picture to find a visual synch point.

AUTOPLACE & SLIP



SHOW
AUTOPLACE
TOOLBAR
(ON MAIN
PLAYLIST
TOOLBAR)

All of the functions for positioning Entries described above are affected by further options provided on the Autoplace toolbar:-



The first three buttons control Slip.



The first button turns the Slip function on or off.



Preselects Slipping of Entries to the left of the selected one.



Preselects Slipping of Entries to the right of the selected one.

With the function on, when an Entry is selected, other Entries on enabled Streams will turn dark blue and will automatically be moved in the following circumstances:

1. Moving an Entry by nudging, dragging it with the mouse, using Remove Gap, or by any editing functions will cause Slipped Entries to move with it.
2. If right-hand Slip is selected, removing an Entry from the EDL will cause later Entries to be brought forward by an amount equal to its duration. This means that removing an Entry between two cuts in continuous audio will automatically remove the gap that would otherwise be left.
3. If right-hand Slip is selected, pasting a new Entry into the EDL causes Entries after it to be moved back by an amount equal to its duration - i.e. they make room for it!

The next group of seven Autoplace buttons provide automatic placing of Entries when they are either pasted into or moved within the Playlist:-



Turns the Autoplace function on or off.



Autoplaces an Entry to butt up to the previous one on that Stream. The start of its fade-in will coincide with the start of the previous Entry's fade-out (like Remove Gap).



Autoplaces an Entry with a pre-set gap separating it from the end of the previous one. The gap can be set in the Playlist section of the Setup window, displayed from the View menu.

NOTE: The above two functions are handy for roughly putting together an EDL that you are going to fine tune later.



Autoplaces an Entry in sync. with the EDL time when the Track was recorded.

NOTE: This will keep in sync. an overdubbed recording or a recording that was made while SADiE was slaved to timecode.



Autoplaces an Entry so that the Hotspot rather than the in-point goes to the EDL time shown by the mouse time display (or the current-time display when using the hardware controller).

NOTE: The Hotspot is a useful marker that you can set at a particular point within a Clip or Entry and then use as the reference when placing it. For example, when you place a sound effect of a screech of car tyres followed by a crash, it's probably the crash that you want to position accurately. The Hotspot may actually be outside the in and out points of the Entry you are placing - you wouldn't include the sound of the clapperboard recorded at the start of a dialogue Track, but you can still use it as the Hotspot in order to place Entries from that Track in sync. To set or adjust the Hotspot, see Chapter 5, *Editing*, and the "Clip Details Window" section of this chapter.



Autoplaces an Entry with its in-point at the current time. This can usefully be done on the fly, whilst listening to the rest of the EDL to get the "feel" of where you want an Entry to start.

NOTE: As SADiE loads the EDL into memory when you start to play it, you will not hear any changes you make during playback until the next time you start it.



Autoplaces an Entry with its Hotspot at the current time. Use in the same way as the above.

NOTE: The current Autoplace and Slip settings can be displayed on the Status bar at the bottom of the screen. Right-clicking on them will then bring up a box to change settings. This avoids taking up screen space with the toolbar.
Use the View menu to display the Setup window, double-click on "General" and select the Status displays section. You can then choose which displays are shown.

GROUPING ENTRIES

Any number of Entries may be grouped together. They will be redrawn as a single block in the Playlist. This may be for convenience of display, for repeated operations to the same group, or to avoid accidentally undoing edits. You can rename a group, and store it in a Clipstore, so a heavily edited piece can be stored as a single Clip.



First select the Entries you want to group, then press **GROUP SELECTED EDL ENTRIES**.

NOTE: Groups cannot be drawn as profiles, as they may consist of Entries that overlap. When selecting lots of Entries it may be easier to select all the Entries in the EDL and then deselect the ones you don't want included in the group:-
Click on "Edit" on the menu bar, then "Select All" (or press Alt, E, S on the keyboard). Deselect Entries by holding Shift on the keyboard while clicking on them with the mouse. (On the hardware controller make sure no in, hot or out edit points are selected, position the current-time cursor over the Entries and press **SHIFT + EDIT/SELECT**.)



Groups may be further grouped with other Entries or other groups and a hierarchy is formed.

At any time you can break a group back down into its component parts by selecting it and pressing the **UNGROUP** button.



UNGROUP

MAKE STEREO AND MAKE MONO

To make a stereo entry into two mono entries, select the entry and push the UNGROUP button.

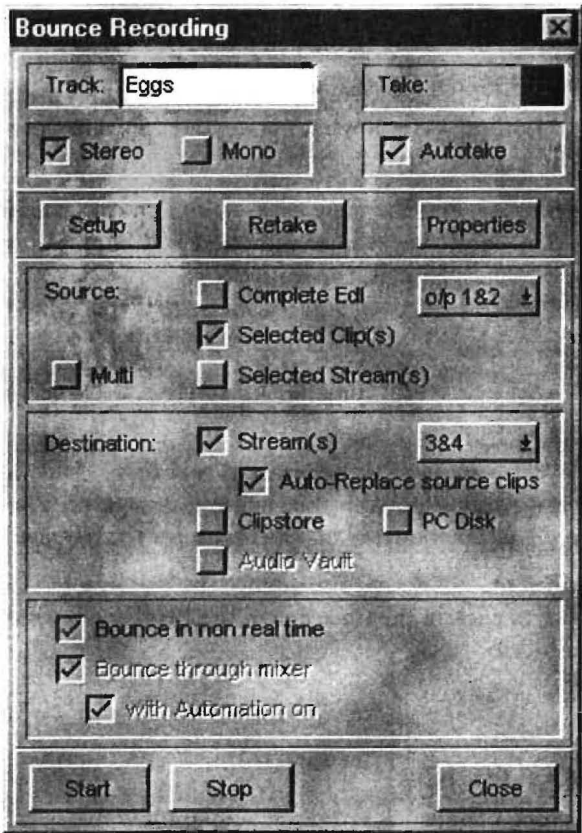
To make a mono entry into a stereo entry -you can only do this if the mono entry was originally part of a stereo one, and therefore another leg exists. Right-mouse click on the entry and select **MAKE STEREO**. This option will only be available if the audio exists.

NOTE: You may want to **UNGROUP** a multi-channel Entry into its component parts, or a stereo Entry into its left and right mono parts in order to treat them separately. For example, you might introduce a time shift between the two channels, or delete one channel from the EDL completely - especially useful when working with M&S stereo or material you thought was stereo when you recorded it, but turns out to be mono!

BOUNCE-DOWN



Entries may be permanently grouped by re-recording them internally. It is possible to do this through the Mixer (See “Bounce-Down” in Chapter 6, *Mixing and Processing*), however for most purposes, the Bounce Window provides a simpler method.



You may choose to bounce entries down for a number of reasons:

- Convenience. You want the mixed or processed result to always appear as a single EDL Entry, or you don't want to bother with setting the Mixer or Automation to process the required Entries every time you play the EDL.
- To clear SCSI space. You want to re-record small parts of one or more much longer Tracks that you can then delete (as described under “Audio Disk Management”, in Chapter 7, *File Management*).
- There is not enough DSP power available to carry out the processing you require in real time and/or play the number of simultaneous Entries you require. Process and re-record the necessary Entries with “Non-real time” selected in the Transport Controls’ record section. Then you can use the processed versions in the full EDL. See Chapter 2, *Recording*.

The Bounce Window can re-record a group of clips, with or without the mixer, automation or processing, so that they become a single mono or stereo track. There are many possibilities but let's follow a fairly simple example where you are re-recording some edited clips to form a “master” stereo track

1. First, select the clips in the EDL. We shall re-record these clips through the mixer, so check the mixer balance is correct.

2. Click on the bounce icon to open the Bounce Window.
3. We shall need to enter a name for the recording. The first section of this window serves the same purpose as the Record tab of the Transport window.
4. Next tick **Selected Clips** in the Source section. The Source section tells Bounce what to re-record - **Complete EDL** or **Selected Streams** are the other possibilities. We are making the new recording through the mixer and so check that o/p 1&2 are chosen from the pop-up list - we are recording what is appearing on these outputs.
5. We must choose, in the **Destination** section, what's going to happen to the new track after re-recording -
 - **Stream** - tells Bounce to put it into the same EDL on streams specified in the pop-up list.
 - **Auto-replace source clips** - only works in conjunction with **Stream** - when this is ticked, at the end of the bounce process, the source clips are deleted.
 - **Clipstore** - leaves the Playlist unaffected, and places the new track into the current Clipstore.
 - **PC Disk** - this is explained below - it is unadvisable to choose this option unless you have a specific need to.
6. The bottom section allows you to choose **Bounce in non real time**. If this is selected the bounce will be performed as quickly as possible, but will not be audible. The other two options allows you to turn off automation and/or the mixer for the bounce.
7. Press **Start**. The process will start, and during the bounce the ball icon in the Bounce button will "bounce". Be careful not to click in the time-line in the Playlist or press transport buttons - you will halt the bounce.

SPECIAL BOUNCE FUNCTIONS

1. **Multi-Bounce** - with **MULTI** selected as the source for the bounce, every entry in the EDL will be re-recorded as a separate audio file on the disc drive. If you want a group of entries to become a single audio track then simply group the entries - a Group Entry is treated as 1 entry. You must have Autotake selected - the new tracks will be automatically named using this function.
2. **Bounce to PC Disk** - the new track(s) can be recorded to the PC disk by ticking this option. In the Bounce page of Setup you should set a **PC Bounce Destination** directory to tell SADiE where to put the new files. You will also have to set a file format for the new file(s) **Properties** in the Bounce Window opens a Track Properties Box to allow you to change this. Note that the chosen format must be suitable for the PC - i.e. **NATIVE**, **SADiE2** and **SADiE3** file formats are not allowed to be recorded to the PC disk. Note that files on the PC disk cannot be played directly in an EDL, therefore don't bounce to the PC disk unless you have a specific reason to do so. However, this function (possibly in conjunction with Multi-bounce) is very useful, for instance, for preparing *.WAV files for multimedia productions where the final edited files need to be placed onto a PC disc.
3. **Bounce to Audio Vault** - this is an option for Audio Vault users only.

- 4. **Reverse bounce** - The REVERSE option in the Bounce window allows you to make a backwards copy of an EDL entry or entries. Note also that right mouse clicking over an entry will initiate the Bounce window with Reverse enabled. Otherwise the Bounce window works in the normal way. Note that as usual the Bounce records the Output of the mixer including any level changes or processing.
Reverse cannot be used in conjunction with any Non 1-1 process, such as Resample or Timemod.

UNDO AND REDO



The last change that you made to the EDL can be reversed by pressing **UNDO**. Press **UNDO** again to reverse the change before that, and so on, stepping back through the history of your actions. The maximum number of undo levels is set in the Setup window and can be up to 25.

REDO steps you back the other way after using undo.



The **UNDO** button is at the bottom right. **SHIFT + UNDO** is redo.

NOTES: Undo and Redo are also available on the menu bar under "Edit". This may be useful as it also gives a description of the operation.
Note that the Edit menu Undo and Redo commands can also apply to the Mixer and Clipstore, if those are the active window.
The Undo memory is cleared whenever Streams are removed from or added to a Playlist.

LOCKING ENTRIES TO EDL TIME



As long as this button is depressed, all EDL Entries will be locked to EDL time and so will remain in sync. Entries can still be moved from Stream to Stream in all the usual ways, but their time position in the EDL cannot be changed by dragging, nudging, or any editing operations - apart, of course, from cutting and re-pasting.



The button is labelled **LOCK**.

NOTE: When **LOCK** is on, **SLIP** will be disabled.

CLIP DETAILS WINDOW - CHANGING ENTRY CHARACTERISTICS

The Clip Details window lets you alter the way EDL Entries in the Playlist are replayed as well as providing another way to alter their positions in the EDL and labelling.

NOTES: The Clip Details window can be equally well used to alter the details of Clips in the Clipstore. This will affect the way they are replayed when they come to be placed in an EDL. If you want to store different versions of Clips in the Clipstore, change their name before writing them back to it. For example, a Clip called "Splash" could be loaded into the Clip Details window, have its level adjusted and name changed to "Quietsplash" and then be written back to be used as an alternative version.

Although each Clip Details window only refers to a single Clip or Entry, you can have several CDWs open at the same time.



First select the single Entry or Clip you want to adjust. Then load it to a Clips Details window by pressing the button on the Playlist or Clipstore toolbar.

NOTE: In the Playlist section of the Setup window there is an option to open the Clip Details window by double-clicking on the Entry.

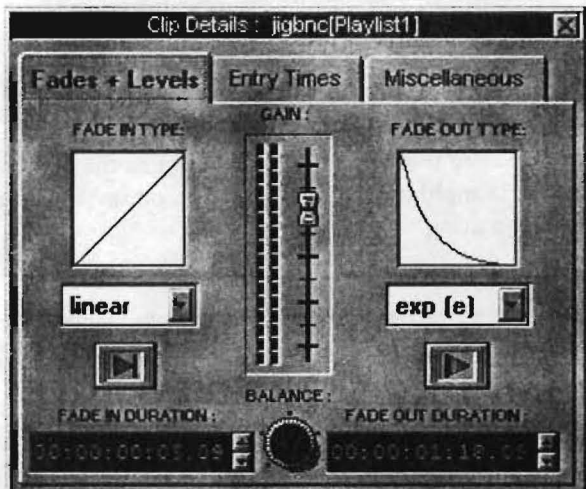
The window has a row of buttons along the bottom providing:



- A "Write-back" button which updates the Playlist or Clipstore with the new details.
- Buttons providing four ways of loading new Clips/Entries into the existing window for alteration - each is described by the on-screen help. Remember to write back one Clip's details before loading the next.
- A preview button for hearing the Clip/Entry with the changes you are making in real time.
- A Close button for closing the window when you've finished with it.

There are three tabs along the top which reveal three different sections:

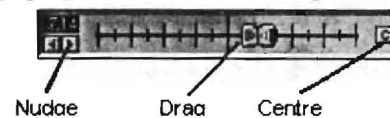
FADES AND LEVELS



The Fader changes the level the Clip/Entry will be replayed at. There is a PPM next to the fader to check the level.

NOTE: This sets the Entry's replay level relative to others on the same Stream, which will then be affected by the faders of the Mixer. It is useful for changing the level of a single Entry without bothering with Mixer automation.

The Balance control is a true stereo balance, or offset, adjusting the relative levels of the left and right channels of stereo material. It will not be active for mono Clips/Entries. Click and drag it left-right to adjust. A small fader will pop up to indicate the setting. Double-clicking allows you to adjust the pop-up fader directly:

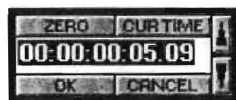


The rest of this section displays the details of the fade-in (on the left) and the fade-out (on the right). Every Clip or Entry in SADiE has a fade-in and fade-out, the length of which can be adjusted from the whole of the Clip's duration right down to zero, and the curve of which can be selected from a list of 20 different types.

NOTE: The default fade-ins and fade-outs which result from starting and stopping recording, and from making razor-cuts when editing can be set in the "Default Crossfade" section of the Setup window, displayed from the View menu. A standard time of 21 milliseconds/40 timecode subframes/1 CD frame (the "General" section sets how times are displayed) will give smooth edits for most purposes. For fine editing, like removing clicks and pops, you might want to reduce this by at least half. Note that zero-length crossfades are likely to cause clicks unless you use the Trim Editor at its highest magnification to make sure the waveform either side of the edit point does not jump in level.

To adjust a fade length, do either of the following:

1. Click, hold and drag the mouse up or down over any field of digits in its time display (i.e. the hours, minutes or seconds, etc.). Their value will increase or decrease - the more you move the mouse, the faster they change. Release to set the new value.
2. Use the up/down arrows beside the display to nudge its value by the lowest units. Hold Shift to nudge seconds, Ctrl to nudge minutes.
3. Double-click on the display.



The box that pops up allows you to:-

- Directly type in a new duration (or use the mouse cursor to drag across and overwrite only part of the displayed duration). End with the keyboard Return/Enter key.
- Click on "Zero" to enter zero, followed by "OK".
- Use the up/down arrows to adjust the time, as in no. 2 above, followed by "OK".

NOTE: Fade lengths can also be adjusted graphically in the Playlist and the Trim Editor. See Chapter 5, *Editing*.



To change a fade type, press the down-arrow button next to the name of the current type.

The drop-box that appears lets you choose from twenty fade curves. Either use the scrollbars and select the new fade with the mouse, or type the first letter of the fade you want (repeat to cycle through log a - log g, etc.), followed by Return/Enter on the keyboard.

The fade curve is drawn in the box above the name. There are 7 different logarithmic and exponential curves.

“Equal Power” can be useful to achieve constant level on long crossfades of some material.

Exponential fade-outs d, e and f are good music fades.

Short logarithmic fade-ins are useful for taking the edge off an abrupt start of speech.

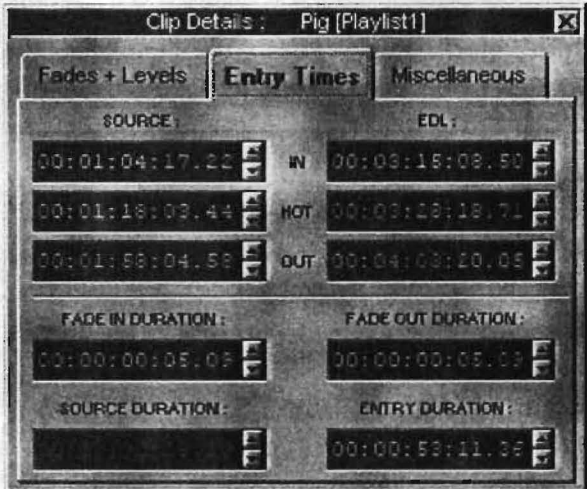
Linear is a good default for other crossfades and edits on most material.

Buttons are provided to preview just the fade-in or fade-out, with a pre-roll and post-roll time set in the pre/post roll section of the Setup window.

NOTES: The default fade types which result from starting and stopping recording, and from making razor-cuts when editing can be set in the “Default Crossfade” section of the Setup window, displayed from the View menu.

Setting long Entry fade-outs (for music and effects, for example) is a useful alternative to using fader automation in the Mixer.

ENTRY TIMES



This section displays the times at which the in-point, Hotspot and out-point of this particular Entry or Clip occur in:

1. the SOURCE Track. Times define what portion of the original recording is being used for this Entry/Clip.
2. the EDL. Times define at what time that portion will be replayed and will be blank for Clips in the Clipstore.

The fade durations are also displayed here as well as the overall duration of the Entry/Clip. Source Duration is the length of the original Track as it was recorded.

All of the above times (except the source duration) can be altered in the same way as described for fade durations in the above section.

The values are interactive, following the same logic as Source/EDL Playlist editing. So, for instance, if you change the Entry duration, the EDL out time will change accordingly.

MISCELLANEOUS



Here you can change the name of a Clip/Entry, and write text for dialogue or notes that may be shown alongside the Clip in the “Comments” area of the Playlist Stream. The Playlist Display section of the Setup window sets whether dialogue or notes are displayed.

Use the mouse to position the cursor to enter text, or drag across text you want to overwrite.

Seven other buttons affect the way the Clip/Entry behaves.

Protects the Entry from having its Source times changed, so it’s always the same bit of audio.

Causes all Mixer automation data in the EDL to be ignored for this Entry.

Phase reverses the left channel of stereo Clips/Entries (or the whole mono Clip/Entry).

Phase reverses the right channel (for stereo Clips/Entries only).

Slip all previous Entries and...

Slip all following Entries when you write back changes that move this Entry in the EDL. These will initially reflect the Slip status of the Playlist but can be used to override it when writing back, just like the Trim editor’s Slip buttons.

TEXT EDL

The Playlist is a graphical representation of the EDL. Often, however, it is useful to view and edit the EDL in text form, as a “cue-list” of Entries to be played, in order.

DISPLAYING THE TEXT EDL



Each Playlist has a Text EDL underneath it which can be revealed by pressing the TEXT PANE button, then selecting the tab marked “Text EDL”. You can adjust the boundary between the text pane and the Playlist by dragging it with the mouse.

NOTE: Enlarge the Playlist window by dragging its outer borders if neccessary.
You can also open the Text EDL in a separate window: Make sure the Playlist is active, then from the Window menu select New Window and choose Text EDL.

Entry ±	Entry name ±	Track name ±	EDL start time ±	EDL end time ±	Entry duration
1	tone [18]	tone	00:00:09:18.19	00:00:41:06.19	00:00:31:12.00
2	count2[1]	count2	00:01:00:00.00	00:01:13:19.78	00:00:13:19.78
3	hdrum [1][1]	hdrum	00:01:14:01.74	00:01:58:09.29	00:00:44:07.35

For each Entry, the Text EDL shows in columns most of the details that would be shown in its Clip Details window. The display scrolls vertically through the EDL and horizontally through the different columns.

USING THE TEXT EDL



The Text EDL is fully interactive with the Playlist display, and so all the hardware controller functions on the Playlist will still apply. However, you can perform several operations directly on the Text EDL display with the mouse:

- Select Entries by clicking on the Entry number in the “Entry” column. Holding the keyboard Shift key whilst selecting another Entry selects all Entries between them. Holding the Ctrl key lets you select/deselect any number of Entries.
- Start playback from the in-point of any Entry by double-clicking on the Entry number.
- Stop playback by single-clicking on any Entry number.

Every Entry detail that can be altered in the Clip Details window described above can also be altered here by double-clicking on the display in the relevant column. You can even type in a value in dBs for the level! Finish with the Enter key, or the Escape key to cancel.



LOCK ALL
ENTRIES

NOTE: The effect of changing EDL times in the Text EDL depends on the position of the global LOCK ALL ENTRIES button in the Playlist. For example: when Entries are locked, setting a later start time will trim the beginning off the Entry, whereas when they are not locked, it will move the Entry in the EDL.

Additionally you can change Streams in the relevant column by typing in the new Stream number, or the lower numbered of the two Streams for a stereo Entry.

The following details, which relate to the original Track, cannot be changed and are for display only:- the **Track name**; **Sample Rate** at which it was recorded; **Sample Resolution** (in bits per sample) at which it was recorded and the **Offset** between its original time in the EDL during recording and its time in the present EDL. (Offset represents how much out of sync. it is, where sync. is relevant.)

CUSTOMISING THE TEXT EDL DISPLAY

You can rearrange the columns in the Text EDL to suit yourself. Click on the grey column heading buttons and select the options that you want from the drop-box. “Insert Column” inserts a duplicate column which you can then redefine by clicking on its heading button and selecting the required display parameter from the list. “Delete Column” shouldn’t really need explaining, should it? The width of columns can be changed by dragging the dividers between the heading buttons.

PRINTING THE TEXT EDL

The Text EDL can be printed out as arranged on screen. It will print in exactly the order displayed.

This is available under the Playlist menu - Print Text EDL

To Printer Prints directly to the printer. **Beware** that in normal circumstances you are likely to be displaying far more Text EDL fields than will fit, width-wise on a normal sheet of paper in a normal (readable) sized font, and therefore you will need to customise the display before printing.

To File... 'Prints' to a text file, which can be imported into another application for further manipulation.

The **Printing** section of the **SETUP WINDOW** allows you to set the number of characters per line, and also the delimiting character. This is particularly useful for importing the list into a spreadsheet or database.

WORKING WITH MORE THAN ONE EDL

You may open several Playlists and create EDLs in each of them (see Chapter 7, *File Management*). This may be useful to create alternative versions of a piece of work.

To copy an entire EDL from one Playlist to another:-

- Save the EDL in Playlist A.
- Create a new Playlist B (in the Project window, or the File menu).
- Load the saved EDL to the paste buffer (under the File menu).
- Paste it into Playlist B.
- You now have two identical EDLs and you can make different changes to each of them.

To copy EDL Entries from one Playlist to another:-

Either:

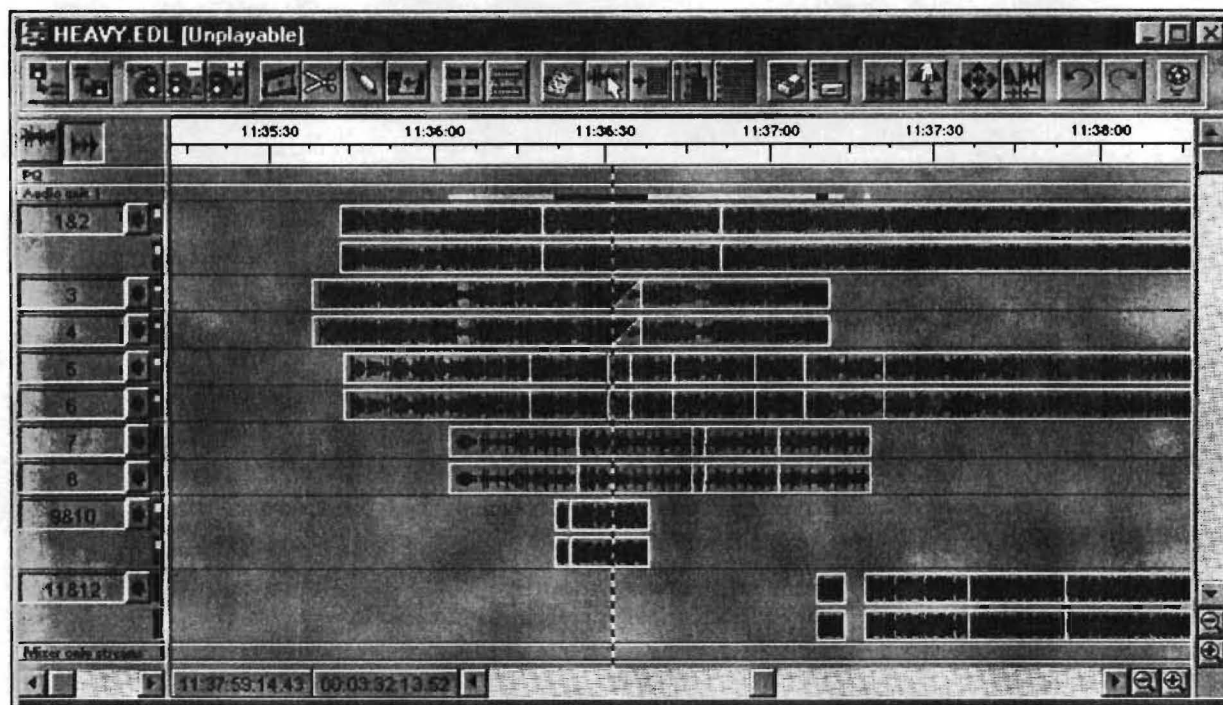
- If both Playlists are visible, hold the Ctrl key and the Shift key and drag the Entry from one Playlist to the other.

Or:

- Copy to the paste buffer, make the other Playlist the active window and paste into it.

DSP POWER

You may notice that from time to time yellow or red strips appear at the top of the Playlist display in the grey bar marked 'Audio Unit 1', and the Playlist title bar may say 'unplayable'. Or entering playback gives you a message 'Out of DSP....', 'Out of DSP memory', or perhaps 'Disk too Slow'.



There is a limitation to the amount of DSP power the hardware has, but the SADiE software has no such limit, and allows you to make a playlist that will perhaps play on one platform but not on another. In some situations this may be an advantage - you could tracklay and edit on a cheaper, less powerful system and then transfer the project to a bigger system for mixdown and payout.

The yellow (watch out !) and red (too late !) lines warn you that the DSP loading is reaching or has overstepped the limit for the hardware platform you are working on. These take into account the number of playback streams of audio plus the number of mixer strips and processing in use. Yellow comes on at about 80% loading and when the Red line appears, the playlist should not theoretically play. These will never be 100% accurate - for instance disk fragmentation will add an unknown factor, but are intended merely as a guide to help you find out whether an EDL has reached the limit. The observant reader will notice that my picture above is playing through a red section of the EDL.

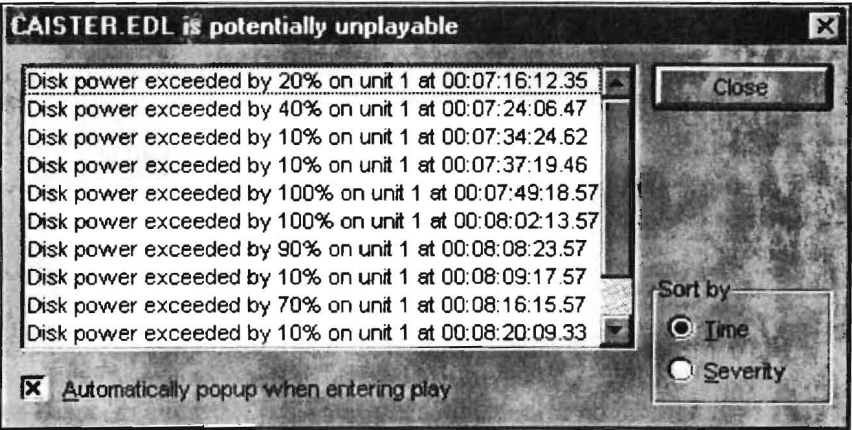
It's worth noting that if a red section plays when you play from where the red starts, this doesn't necessarily mean it will play as part of the entire EDL - the tracks that are playing beforehand do have an effect on playback.

It's possible to view a list of unplayable points in the EDL. To make the EDL playable again, you must make some entries or EDL streams inactive - see below.

LIST UNPLAYABLE POINTS

In the same way as you can ‘capture’ audio overloads, you can view a list of points in the EDL where the DSP is over-capacity. See DSP Power above for reasons why the EDL may be ‘unplayable’.

In the Playlist menu there is an option : List Unplayable Points. Selecting this will show this window:







Activating the check-box in the bottom left will set this window to pop-up if SADiE thinks the EDL is unplayable when you go into play. In that case you will also see and box labeled “Try and Play” which will close this window and play the EDL.

The list box in the window, lists every timecode in the EDL at which the DSP or disk is being asked to operate at past its maximum capacity, and approximately how much over capacity SADiE expects it to be Clicking on the line in the list will locate the EDL to that position in order that you can ascertain where the problem may be,

The list of unplayable points can be ordered by time or by seriousness. To make the EDL playable, you will have to remove some entries, or processing, or alternatively you can leave entries in the EDL but disable them for playback, You can disable whole streams.

INACTIVE STREAMS AND ENTRIES

To allow you to play an unplayable Playlist, you can make either whole streams or individual EDL entries **INACTIVE**. These streams and entries will not play and thus will reduce the loading on the DSP.

-  To make an entry Inactive (or make it Active again having previously made it Inactive) - right mouse click on a single entry and select **MAKE CLIP INACTIVE/ ACTIVE**.
-  To make a whole stream Inactive or Active again, hold the ALT Key and click on the  Stream Name button - the Stream name will be highlighted in Red.
-  On the hardware controller select SHIFT + STREAM and use the wheel or PREVIOUS/NEXT to highlight a Stream, then hit EDIT/SELECT to enable/disable it. SHIFT + EDIT/SELECT acts on the group of Streams above it that are all the same status.

In the PLAYLIST MENU, there are three options to allow you to globally change the active setting of entries and streams:

MAKE ALL CLIPS ACTIVE

MAKE ALL STREAMS ACTIVE

MAKE ALL ENABLED STREAMS ACTIVE

Inactive clips are grey if the profile is being displayed or grey but outlined in their natural colour (green/cyan/yellow etc.) if the profile is off.

Note that making an entry or stream Inactive is NOT the same as muting it - a mute can always be played immediately when the stream is unmuted, and hence the DSP is still working to play it (all be it silently).

SCRUBBING AND DSP POWER

Scrubbing an entire playlist will sometimes cause a 'DSP too slow' or 'Disk too slow' message, where the original EDL played at real-time just fine. This is because the scrub does use extra resources to re-process the audio in order to play at speed, and similarly a disk drive will be more stressed because it's having to deliver the audio data more quickly. Plug-ins will have an effect too, some more than others if they consume lots of DSP power. There is a Setup option that allows you to automatically turn off all plugin processes when you go into scrub, thus relieving the DSP a little to make scrubbing more possible. This will of course change the way your EDL sounds during the scrub (but only the scrub), but will usually make scrubbing possible where previously it wasn't and so is likely to be a more convenient way of operating.

To set this - go to the VIEW menu; Setup Window; Mixer, and tick the button 'Bypass in Scrub' underneath 'Plug-ins'.

NOTES ON MULTI-TASKING

SADiE version 3 will allow certain tasks to take place simultaneously. For instance while you are editing a Playlist you could be recording new audio in and copying files or backing up to a tape streamer in Disk Management.

There are some limitations to this however.

- There is only one Mixer - because there is only one set of physical inputs and outputs. If you are using the mixer to play a Playlist, then you cannot use the same inputs or outputs for recording.
For instance if you are using Output 1&2 to monitor a background recording, you will not be able to use the same Outputs for the foreground operation. Note that a Bounce theoretically uses a pair of Outputs (the bounce operation records the output of the Output bus either in real, or non-real time), and similarly a CDR or DDP master will use the mixer and Output bus 1&2, hence you cannot use the mixer again to play another Playlist.
It's not possible to play 2 EDLs simultaneously.
Note also that the system Audio clock cannot be switched during play or record - for instance, if you are set to Auto Clock, you cannot start a digital background recording whilst playing in the foreground - this would require a switching of the Audio clock and would produce a glitch on the output of the Playing EDL.
- There is a limitation to the amount of DSP power the hardware has. Thus a background record will reduce the number of foreground streams that are playable. However because copy and backup operations do not have to run at real-time and can in fact stop periodically, these will take advantage of the available DSP power remaining and not effect foreground tasks.

See also: *Background Recording Copying Files Project Backup Project Restore*

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research.

2. The second part of the report is a detailed description of the methodology used in the study. It includes information about the sample size, the data collection methods, and the statistical analysis techniques.

3. The third part of the report is a discussion of the results of the study. It presents the findings of the research and discusses their implications for the field of study.

4. The fourth part of the report is a conclusion and a summary of the main findings. It also includes some suggestions for further research.

5. The fifth part of the report is a list of references. It includes all the sources of information used in the study.

6. The sixth part of the report is an appendix. It contains additional information that is not included in the main body of the report.

7. The seventh part of the report is a glossary. It defines the key terms and concepts used in the study.

8. The eighth part of the report is a bibliography. It lists all the books and articles that have been cited in the report.

5 - EDITING

OVERVIEW

SADiE™ provides the user with a fast and intuitive interface for editing. With stereo material, the two channels are always edited simultaneously - unless a stereo EDL Entry is first ungrouped as described under “Grouping Entries” in Chapter 4, *Arranging an EDL*.

There are three editing techniques at your disposal:

- 1) Simple cut-and-splice editing in the Playlist uses the scrub function to accurately locate edit points, and make “razor-cuts”, just as you would on tape. This creates separate EDL Entries so that unwanted material can then be removed.
- 2) The Playlist Editing mode allows you to make and also adjust edits by altering the in-point and out-point of any Entry. At the same time, you can adjust an Entry’s Hotspot (see the Glossary for a description).
- 3) The Trim Editor is a separate window that works like Playlist Editing, but also provides:
 - Greater viewing detail - higher magnification of profiles down to waveform level for removing clicks and mic. pops and the ability to see the profile of the original Track outside the edit points, i.e. the bits that you’re not using at this point.
 - The ability to adjust more than one EDL Entry simultaneously. For example, by moving the fade-in of one Entry and the fade-out of the next together, you can slip the crossfade between them along the audio. Many other possible combinations are equally useful.
 - The ability to “top and tail” a Clip from the Clipstore, and to create a new Clip from an existing Track.

SYNC. OR NON-SYNC. EDITING?



If you work in an audio-only field like radio, when you cut out material, you will usually want to slip everything else along the EDL to fill up the gap, like joining up two bits of tape. Enabling SLIP will do this for you. For safety, pre-select both left and right Slip (see “Autoplace and Slip” in Chapter 4, *Arranging an EDL*, for details).

If you are working to picture, most of the time you are likely to want your audio material to be fixed to the EDL so that it remains in sync. This means you will have SLIP off.

SADiE makes it easy for you to work either way, and to switch between them as necessary.

DEFAULT CROSSFADES AT EDIT POINTS

Whenever you make a “razor-cut” to divide an EDL Entry into two, you will actually create a new fade-out and fade-in at that point. SADiE can do this in either of two ways. These are set in the Playlist section of the Setup window (displayed from the View menu).

- Splice-cut mode. The fade-out and fade-in overlap to make a perfect crossfade. This will undoubtedly be what you want to do normally.
- V-cut mode. The first Entry fades out before the next starts to fade in, so there is no overlap. This is really only necessary when you are reaching the DSP limit of how many Entries SADiE can play at once. This obviously creates a “drop-out”, although it is often not noticeable in clean speech if you are laying music or effects underneath.

The default fade lengths and curve types that are created when you make a razor-cut can be set in the "Default Crossfade" section of the Setup window, displayed from the View menu. A standard default of 20 milliseconds/40 timecode subframes/1 CD frame (the "General" Setup section sets how times are displayed) and a linear curve will give smooth edits for most purposes. For repeated fine editing, like removing clicks and pops, you might want to reduce this to under 5 milliseconds. If you are just doing the occasional fine edit, you don't need to change the default, as each crossfade time is easily adjusted in the Trim Editor or Clip Details window.

NOTE: Zero-length crossfades are likely to cause clicks and are best avoided.

EDITING THE PLAYLIST WITH A MOUSE

RAZOR BLADE OR SCISSORS?

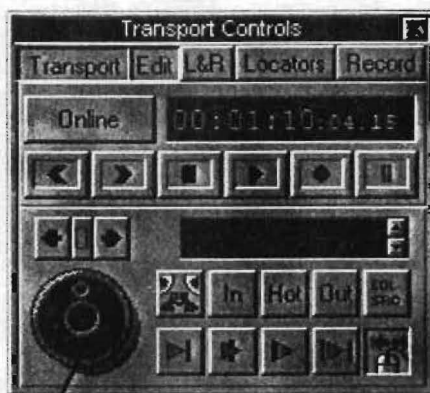


Mouse users have the option of using the "scissors" to make razor-cuts. Whereas the RAZOR-CUT button always cuts at the current-time cursor, when you press the SCISSORS button, the mouse-pointer will change into a dinky scissors icon with a cross to show the target point. You can then make a freehand cut anywhere in the Playlist - useful if you can see where to cut from the waveform profile - and so skip the process of scrubbing to locate the edit point.

NOTE: The scissors cut only on the Stream the mouse icon is over. This provides a useful shortcut to disabling Streams before using the razor blade, as described below. Holding the Ctrl key whilst scissor-cutting cuts across all enabled streams.

The following editing instructions describe scrubbing to locate and then using the razor-cut, but remember that the scissors have the same function.

CUT-AND-SPLICE EDITING



Scrubwheel

1. Display the Edit section of the Transport Controls by clicking on the tab at the top.
2. Click and hold the mouse button over the scrubwheel and drag it to scrub the current-time cursor along the EDL:
 - Moving the mouse up/down gives you forward/reverse **shuttle**. The more you move from your original position, the faster it goes. This is like spooling tape against the heads.

- Moving the mouse right/left gives you forward/reverse jog. The more you move, the more you hear.
This is like nudging a tape machine's reels back and forth.

You can move between jog and shuttle modes without releasing the mouse button.



NOTES: You will hear all Streams that are not muted, so you may choose to solo the relevant Stream(s) with the small Stream control buttons.

If you are using machine control of a VTR, hit ONLINE in the Transport Controls to scrub to picture.

Don't position the scrubwheel too near the top or bottom of the screen, or it will restrict the amount of movement you have for shuttling.

Locate your edit point and release the mouse button.

There are also Hotkeys for three fixed forward and reverse scrub speeds and a scrub-pause. These are assigned to the keyboard under "Edit Controls" in the Hotkey section of the Setup window. The default keys are on the keyboard's number pad. The speed for each Hotkey can be set in the Scrub Setup section of the Transport Controls, Setup window.



3. Before you make a razor-cut you should disable any other Streams that have EDL Entries at this point which you don't want to edit. The STREAM NAME BUTTON enables/disables Streams for cutting. Disabled Streams are darker grey.



4. Press the RAZOR CUT button. The Entry/Entries on enabled Streams will be divided under the current-time cursor.

If you are trimming an Entry's top or tail, you can now simply remove the new Entry to the left or the right of the razor-cut. If you are removing material internally, you will need to locate and make a second razor-cut so that you can remove the new Entry between them.



5. Select (by clicking on it) the relevant Entry and remove it (CUT TO PASTE). If you have SLIP on, the resulting gap will be automatically joined up.



6. Play the finished edit by double-clicking in the time bar just before it. If you don't like it, use UNDO and do it again or adjust it using Playlist Editing Mode, described below.

PLAYLIST EDITING MODE



In this mode, when an entry is selected in the Playlist, it will change to a waveform profile and its in and out points and Hotspot can be adjusted.

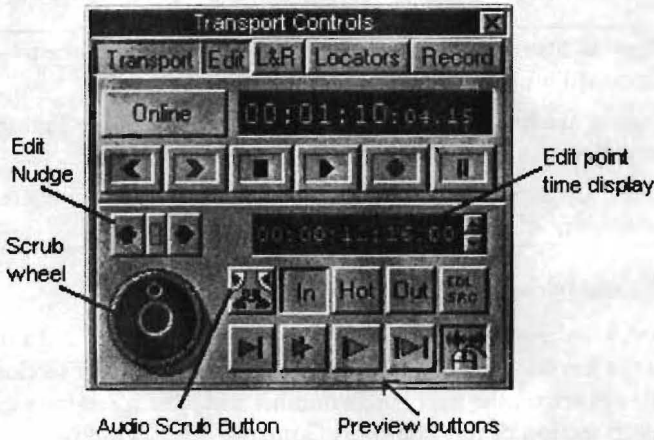
Playlist Editing has the following uses:

- After making a razor or scissors cut as described above, by adjusting the out-point of the preceding EDL Entry, and the in-point of the next, you can remove (or repeat) material at the edit point. The initial razor-cut doesn't even have to be that accurate, as the adjustment will fine-tune the edit.

NOTE: If you are using the razor to make cuts "on-the-fly" during normal speed playback, you may want to use the option in the Playlist section of the Setup window which stops playback when you make a cut.

- You can adjust an existing edit.

- You can adjust the join between two unrelated EDL Entries - such as the way a music Entry fades and speech starts over it.
 - You can adjust an Entry's Hotspot.
1. Display the Edit section of the Transport Controls by clicking on the tab at the top.



2. Activate Playlist Editing mode with this button on the Playlist toolbar.
3. With the mouse, select the Entry on whichever side of the edit point you want to adjust. The Entry turns a brighter red.

NOTE: The AUDIO SCRUB button needs to be down if you want to hear the edit point as you adjust it. With the button up, adjustment will be faster, as SADiE doesn't have to output the audio. This is sometimes useful if you can tell from the profile exactly what you want to do.



4. With the MOUSE EDIT SELECTION button down (the default position), depending where you point the mouse over the Entry, a handy little graphic at the mouse pointer will appear to tell you which bits of the Entry are going to move. When you click the mouse button, the IN, HOT, OUT and EDL/SOURCE buttons automatically select what will be adjusted as follows:

MOUSE GRAPHIC	POINT SELECTED	MODE SELECTED	OPERATION
	IN	EDL	THE FADE IN MOVES
	IN	SOURCE	THE BODY AND THE FADE OUT MOVE
	HOT	EDL	THE HOTSPOT MOVES
	HOT	SOURCE	THE WHOLE ENTRY MOVES
	OUT	SOURCE	THE FADE IN AND BODY MOVE
	OUT	EDL	THE FADE OUT MOVES

The mouse graphic is probably enough to tell you what will happen when you edit, but if you ever want to manually select the editing adjustment by turning **MOUSE EDIT SELECTION** off (for example, to move the Hotspot when it coincides with the in point), a description of the two modes may be useful:



The EDL time of the IN or OUT point of the Entry is adjusted, as well as its time in the source Track. This will be most used when working to picture, as the profile (and so the audio) is fixed to the EDL and sync. is maintained. The HOTspot can be moved without moving the audio.



The IN or OUT point being adjusted remains at the same EDL time, but its time in the SOURCE Track is adjusted by slipping the profile. This will be most used for sound-only editing. With HOT selected, the whole entry can be moved and will scrub across the current-time cursor.

- 5. When you have the mouse graphic you want, click and drag the mouse over the Entry profile, to either jog or shuttle it, as described in “Cut-and-Splice Editing”, above. When you release the mouse button, the edit adjustment is done!



You can also adjust the edit in small increments by “nudging” it with the EDIT NUDGE buttons in the Edit section of the Transport Controls or buttons above the scrubwheel. The nudge steps are set in the Trim Edit Nudge section of the Setup window. There are two settings: 1. Pressing the buttons. 2. Holding Alt. while pressing the buttons.

The buttons can be pressed repeatedly, or held down. You will not hear the audio when using them.

NOTES: Shuttle is useful for losing large amounts of material at an edit point, just like dumping tape onto the floor, but you don’t have to worry about stepping on it. Whether previous or subsequent Entries move when you release the mouse button will be determined by whether you have selected a SLIP mode and which Streams are enabled to be slipped (see the Autoplace and Slip section in Chapter 4, *Arranging an EDL*). The time display in the Transport Controls edit section will show you the time of the IN/HOT/OUT point being adjusted in either the EDL or the SOURCE Track, and both of these (or the new duration) appear alongside the Entry profile on the Stream. When moving the whole Entry, the Stream display shows EDL in and out times.

- 6. To hear the edit you can either play it normally, by double-clicking in the time bar just before it, or use the preview buttons, which play a pre-set amount either side of the edit point:



PLAY THROUGH plays through the edit.

PLAY TO plays just the left-hand side of the edit and



PLAY FROM plays just the right-hand side. These can be useful for assessing which side you still need to adjust.



PREVIEW will play the selected EDL Entry, from one edit point to the next.

You can cancel a preview while it is playing with a second press of its button

NOTE: There are three pre-roll and post-roll lengths available by pressing:
1. Only the preview button.
2. Shift + the preview button.
3. Ctrl + the preview button.
The lengths of each are pre-set in a dedicated section of the Setup window which is displayed from the View menu.

IN PRACTICE This is much quicker to do than to read about!

Normal non-sync. editing (SLIP on) means making a cut, hitting the **PLAYLIST EDITING** button, selecting and adjusting the left side of the edit with , then selecting and adjusting the right side with .

Editing sync. material (SLIP off) will usually mean doing the same to trim the ends of Entries with  and . For extra safety, you will have **LOCK ALL ENTRIES** on as well.





TIP: When editing the Playlist, you may want to quickly switch between two different vertical and horizontal zoom settings. Save them in two different Desktops (see the Desktops section in Chapter 9, *Customising SADiE*). You can then switch between the Desktops by using the keyboard shortcuts to the Desktop menu:- Simply press Alt + D, followed by the number of the desktop file listed.



FADES AND CROSSFADES

There are four more mouse symbols which let you increase the length of the fades at the in and out points by dragging out the start or the end of each fade. Overlapping them will create crossfades.

Hold the keyboard Ctrl key as you move the mouse over the edit point:

- | | |
|---|---------------------------|
| | CLICK AND DRAG: |
|  | THE START OF THE FADE IN |
|  | THE END OF THE FADE IN |
|  | THE START OF THE FADE OUT |
|  | THE END OF THE FADE OUT |

The type of fade curve can be altered by displaying the Clip Details window for the Entry. See Chapter 4, *Arranging an EDL*.

Greater flexibility for adjusting crossfades is possible with the Trim Editor.

EDITING THE PLAYLIST WITH THE HARDWARE CONTROLLER

CUT-AND-SPLICE EDITING



1. First disable any Streams you do not want to cut on:

Select **STREAM** and use the wheel or **PREVIOUS/NEXT** to highlight a Stream, then hit **EDIT/SELECT** to enable/disable it. **SHIFT + EDIT/SELECT** acts on the group of Streams above the highlighted one which are all the same status.

Deselect **STREAM** (and make sure you do not have **CLIP** or **ZOOM** selected either).

2. Use the **SCRUB** button to select **jog**, **shuttle** or **move cursor** modes - indicated by the small LEDs next to the wheel - and locate your edit point with the wheel.

Jog is the equivalent of rocking the reels of a tape recorder back and forth: The more you move the wheel, the more audio you hear.

Shuttle is the equivalent of spooling the tape across the heads: The more you move the wheel, the faster the audio goes forward or backwards.

Move cursor mode (all LEDs off) lets you quickly locate the current-time cursor without audible scrubbing.

There are also Hotkeys for three fixed forward and reverse scrub speeds and a scrub-pause. These can be assigned to the keyboard, or the hardware controller's function buttons, under "Edit Controls" in the Hotkey section of the Setup window. The default keys are on the keyboard's number pad. The speed for each Hotkey can be set in the Scrub Setup section of the Transport Controls, Setup window.

NOTE: You will hear all Streams that are not muted, so you may choose to solo the relevant Stream(s). Use **SHIFT + MUTE** above the hardware faders.
If you are using machine control of a VTR, hit **ONLINE** to scrub to picture.

3. Press the **RAZOR** button. The Entry/Entries on enabled Streams will be divided under the current-time cursor.

NOTE: If you are trimming an Entry's top or tail, you can now simply remove the new Entry to the left or the right of the razor-cut. If you are removing material internally, you will need to make two razor-cuts so that you can remove the new Entry between them.

4. Select the relevant Entry by moving the current-time cursor over it and pressing **EDIT/SELECT** and remove it by pressing **CUT**. If you have **SLIP** on, the resulting gap will be automatically joined up.
5. Play the finished edit by moving the cursor back a bit and pressing **PLAY**. If you don't like it, use **UNDO** and do it again or adjust it using Playlist Editing Mode, described below.



PLAYLIST EDITING MODE

In this mode, when an entry is selected in the Playlist, it will change to a waveform profile and its in and out points and Hotspot can be adjusted.

Playlist Editing has the following uses:

- After making a RAZOR cut as described above, by adjusting the out-point of the preceding EDL Entry, and the in-point of the next, you can remove (or repeat) material at the edit point. The initial razor-cut doesn't even have to be that accurate, as the adjustment will fine-tune the edit.

NOTE: If you are using the razor to make cuts "on-the-fly" during normal speed playback, you may want to use the option in the Playlist section of the Setup window which stops playback when you make a cut.

- You can adjust an existing edit.
- You can adjust the join between two unrelated EDL Entries - such as the way a music Entry fades and speech starts over it.
- You can adjust an Entry's Hotspot.

There are six possible adjustments, from selecting **IN**, **HOT**, or **OUT** and either **EDL** or **SOURCE** mode. (Source mode is with the button LED on.)

EDL

The EDL time of the **IN** or **OUT** point of the Entry is adjusted, as well as its time in the source Track. This will be most used when working to picture, as the profile (and so the audio) is fixed to the EDL and sync. is maintained. The **HOTspot** can be moved without moving the audio.

SOURCE

The **IN** or **OUT** point being adjusted remains at the same EDL time, but its time in the **SOURCE** Track is adjusted by slipping the profile. This will be most used for sound-only editing. With **HOT** selected, the whole entry can be moved and will scrub across the current-time cursor.

1. First select the edit point to be adjusted - **IN**, **OUT** or **HOT**.
2. Next select the entry to be adjusted by using the wheel to move the current-time cursor over it and pressing **EDIT/SELECT**. As an edit point is already selected, this will activate Playlist Editing on that Entry, which will turn brighter red, and the "Edit" LED by the wheel will flash.

NOTE: If you have Entries on several Streams at this point, you will be selecting the one on the lowest numbered, enabled Stream. If necessary, disable Streams as described for cut-and-splice editing. If you have just made a razor-cut, you will have done this already.

To avoid disabling Streams, replace the above two steps with:

1. Select the Entry by pressing **EDIT/SELECT** or **PREVIOUS/NEXT** repeatedly to cycle through all Entries under the cursor.
2. Select **IN** **HOT** or **OUT**.
3. Press **EDIT/SELECT** again to activate Playlist Editing.

3. Adjust the edit point with the wheel. The **SCRUB** button will select

Jog mode - the more you move the wheel, the more audio you hear.

Shuttle mode - the more you move the wheel, the faster the audio goes forward or backwards.

Move mode (no LED permanently on) - quick adjustment without audible scrubbing. This is sometimes useful if you can tell from the profile exactly what you want to do.

You can also adjust the edit with various Hotkeys, which may be assigned to the keyboard or the HWC function buttons under Edit Controls in the Hotkey section of the Setup window:

“Nudge Edit Point” Hotkeys will adjust the edit in small increments which are pre-set in the Trim Edit Nudge section of the Setup window.

There are three fixed scrub speed Hotkeys for forward and reverse adjustment, and a scrub-pause key. The default keys are on the keyboard’s number pad. The speed for each Hotkey can be set in the Scrub Setup section of the Transport Controls, Setup window.

NOTES: Shuttle is useful for losing large amounts of material at an edit point, just like dumping tape onto the floor.

The time displays on the controller will indicate the time at which the selected edit point occurs in the Source Track and in the EDL. When moving a whole Entry (**HOT + SOURCE**), an on-screen display on the Stream will show the EDL in and out times.

If **SLIP** is on, whether previous or subsequent Entries move when you finish an edit is determined by which Slip mode is pre-selected and which Streams are enabled to be slipped (see Autoplace and Slip section in Chapter 4, *Arranging an EDL*).

4. Press **PREVIEW** to play across the edit point with the pre- and post-roll times set in the Setup Window (under “View” on the menu bar). Note that alternative pre- and post-roll times can be set in the Setup window.
5. Press **EDIT/SELECT** again to turn Playlist Editing off and confirm the edit, or select other entries with **NEXT** and **PREVIOUS**.

IN PRACTICE This is much quicker to do than to read about!

For most non-sync. editing (**SLIP** and **SOURCE** on): In your chosen **SCRUB** mode locate the edit point with the wheel, press **RAZOR** to make a cut, move the cursor back a bit, hit **OUT**, then **EDIT/SELECT**. Adjust the left side of the edit with the wheel then press **NEXT** and adjust the right side.

Edit sync. material the same way with **SLIP** off and in **EDL** mode. For extra safety, you will have **LOCK** on as well.

Generally it is safest to confirm each edit by pressing **EDIT/SELECT** to turn Playlist Editing off. You are then free to use the wheel without accidentally re-adjusting the last edit.

TIP: When editing the Playlist, you may want to quickly switch between two different vertical and horizontal zoom settings. Save them in two different Desktops (see the Desktops section in Chapter 9, *Customising SADiE*). You can then switch between the Desktops by using the keyboard shortcuts to the Desktop menu:- Simply press **Alt + D**, followed by the number of the desktop file listed.



FADES AND CROSSFADES

To adjust the length of fades **IN** or **OUT**, and overlap them to create crossfades, press **CROSSFADE** to move the inner point (i.e. the end of a fade-**IN** or the start of a fade-**OUT**) and **SHIFT + CROSSFADE** to move the outer point (the start of a fade-**IN** or the end of a fade-**OUT**).

The type of fade curve can be altered in the Clip Details window for the Entry, or in the Text EDL. See Chapter 4, *Arranging an EDL*.

Greater flexibility for adjusting crossfades is possible with the Trim Editor.

USING THE TRIM EDITOR

The Trim Editor can be opened and loaded with one or more Entries/Clips from the Playlist/Clipstore and the in and out points and fades adjusted. You then “Write Back” the edited version to the Playlist/Clipstore.

You might load it with one Clip or Entry:

- To “top and tail” a Track selected in the Clipstore and store it back there as a new Clip for later use.
- To top and tail a single Playlist Entry - removing unwanted material either side of a bit of dialogue, for instance.
- When you want to search through a Track to define a new Clip - say you need to grab a breath or a word. In this instance you will probably load the Trim Editor from the Track in the Clipstore, define the new Clip and paste it straight into your EDL.

You might load it with two Entries from the Playlist:

- To make fine adjustments to an edit. All edits are a join between two Playlist Entries, so it is the Entries either side of the edit that will be loaded.
- To adjust any other join between two Entries. For example, how a piece of music fades down under a voice-over, or how one piece of atmosphere crossfades into the next.

You might load it with three Entries:

- To work on an edit point in some dialogue that has music running underneath.
- When you feel really clever! - Any more than three Entries is getting quite ambitious.

OPENING THE TRIM EDITOR

1. From the Playlist or the Text EDL:

Select the Entry or Entries you want load into the Trim Editor. Selecting Entries is described fully in Chapter 4, *Arranging an EDL*. They do not have to be adjacent, or on the same Stream.



Press the OPEN TRIM EDITOR button on the Playlist toolbar, or the designated function button on the hardware controller.

2. From the Clipstore:

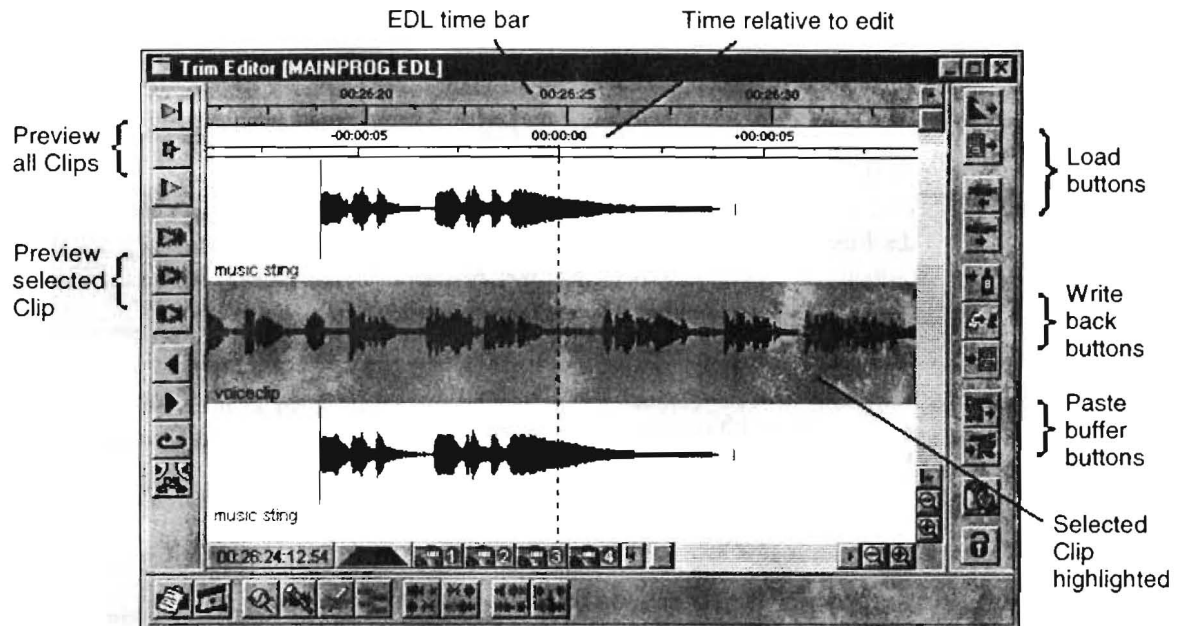
Select the Clip that you want to load.



Press the LOAD CLIP TO TRIM EDITOR button on the Clipstore's toolbar.

On the hardware controller, you can designate two Hotkey commands to function buttons: one to open the Trim Editor, and another to load the selected Clip in the Clipstore.

A Trim Editor window will now appear containing the Entries or Clips that you loaded.



In the example above, two Entries have been loaded from the Playlist: a stereo Entry called "music sting" which is followed by a mono Entry called "voiceclip". The right channel of "music sting" is displayed below "voiceclip" so that you can zoom in on just one channel of each Entry, which is generally clearer and quite sufficient for editing. This viewing order can be changed - see "Other Trim Editor Tools" at the end of this chapter.

The main difference in the way the Clips are displayed here is that because each is drawn on a different line, the profile of the whole Track that it comes from can be shown. The parts that are being used and will be played as Playlist Entries are in green, and the parts not being used are shown in grey.

This makes it possible to see what you are losing as well as what you are keeping in - which can aid editing decisions, since the grey bits are always available to be pulled back into the green side of an edit point.

The Trim Editor has the following features in common with the Playlist:

- An EDL time bar which you can use to start and stop playback. Unlike the Playlist, the current-time cursor ("playback head") is fixed in the middle of the window while the waveform profile of the audio scrolls past. There is also a second time bar which shows time relative to the edit point.

NOTE: In the case of Clips loaded from the Clipstore, the EDL time bar will show the "time stamp" given to the source Track when it was recorded into SADiE.

- Scrollbars to move the display horizontally and vertically.
- Magnification buttons to zoom in or out of the display. Greater magnification is possible here than in the Playlist.

NOTE: When the Trim Editor is the active window, a Trim menu appears on the menu bar. This allows you to change profile types to find one more suitable to the audio you are working with, and to jump between zoom magnification levels. There is also the User Zoom function, described below, under "Other Tools".

- A small time display showing the mouse pointer position. - The current-time display in the Transport Controls will show current EDL time for an active Trim Editor.

SELECTING WHAT TO ADJUST

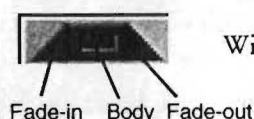
Editing in the Trim Editor is just like using Playlist Editing mode, with the addition of the ability to adjust more than one Clip or Entry at once.

N.B. As the Trim Editor can move Entries in the Playlist, just like Playlist Editing, you need to decide whether to have the Playlist **SLIP** function on or off. However, **SLIP** is **disabled** when you have more than two Entries in the Trim Editor, as it would be too difficult to determine which one takes precedence. If you need the Slip function in this circumstance, use Playlist Editing.

All Clips in SADiE have three parts: a fade-in, a body and a fade-out. (Unless deliberately lengthened, the fades will be very short - the usual default time being 21 milliseconds.) Adjustments in the Trim Editor are made moving any of these parts in relation to the time shown in the time bar.

To select which parts of which Clips will move, either

- Select them directly by clicking on the required parts of the profile, or
- Highlight the required Clip (it will be shown with a grey background) by clicking anywhere on its profile. Then select the required parts on the “blade” shaped Clip icon at the bottom of the window. This icon allows you to select fades when they might be too small to point at on the profile:



With nothing selected, all parts are green on icon and profile.

Hold the Shift key whilst selecting parts of Clips to:

- add them to those already selected to be moved,
- deselect them from those selected to be moved.

NOTE: The Edit section of the Transport Controls can also be used to control the Trim Editor and is fully interactive with it. The **IN HOT OUT** and **EDL/SOURCE** buttons will select the corresponding parts of Clips that would move in Playlist Editing. They also move the display to the selected edit point.

AUTOMATIC SELECTIONS:

In order to speed up the most common tasks, when two Clips are in the window, these selections are made automatically when using a mouse:

- Selecting the earlier Clip selects its fade-in and body (like adjusting out-point in Playlist Source Mode).
- Selecting the later Clip selects its body and fade-out (like adjusting in-point in Playlist Source Mode).
- Selecting the fade-out of the earlier Clip or the fade-in of the later Clip selects both - i.e. the crossfade between them can be slipped against the audio.


Hold the Shift key while selecting if you want to override the above and select only the part you are pointing to.




Using the hardware controller to control the Trim Editor follows the same rules as editing in the Playlist. Select the Clips with the PREVIOUS and NEXT buttons, or CLIP + the wheel, and select IN OUT or HOT points in EDL or SOURCE mode to select the corresponding parts of clips.

When selected, fades turn dark blue and Clip bodies turn dark red - on both the icon (which is always representing the highlighted Clip) and the Clip profiles. Here are some examples:



Body and fade-out will move. Same as adjusting IN-point in SOURCE mode .



Fade-in selected to move. If selected on one Clip only, same as adjusting IN-point in EDL mode .



Body only will move, thus adjusting what part of the source audio is used between fixed in and out points.



Whole Clip will move in relation to EDL time. (Same as HOT + SOURCE)

Note also that pressing the SHIFT key before PREVIOUS or NEXT will add to the selection - i.e. if IN- EDL mode is selected on the right hand clip, SHIFT-PREVIOUS will add the left hand clip's OUT point - in other words, with two clips this selects the whole Edit point.

ADJUSTING THE EDIT

Once you have selected which parts to move, use the mouse or hardware controller wheel to move them, as in the Playlist. The mouse can be used either over the selected Clip's profile, the "blade" Clip icon, or the scrubwheel in the Transport Controls.

NOTE: For mouse users, using the IN and OUT buttons and scrubwheel in the Transport Controls is the easiest way of moving in and out points in EDL mode.



To hear the audio as it moves across the edit point, press the audio scrub button (this is available in the Trim Editor as well as the edit section of the Transport Controls). Then move the mouse left-right to jog and up-down to shuttle. On the hardware controller use the SCRUB button to select jog or shuttle mode for the wheel.



For fine adjustment, you may prefer to use the EDIT NUDGE buttons, which will move the selected parts in fixed steps that you can set in the Trim Edit Nudge section of the Setup window. There are two settings: 1. Pressing the buttons. 2. Holding Alt. while pressing the buttons.

These duplicate the edit nudge buttons in the Transport Controls and can be pressed repeatedly, or held down. You will not hear the audio when using them.

To hear the results of your adjustments, you can:

- Start playback from any point in the time bar (on the hardware controller the wheel, when no edit points are selected, will position the display and then you can use the **PLAY** button).
- Use any one of the following preview buttons, which have the advantage of playing you a pre-set amount either side of the edit point and then returning the display to it.

NOTE: There are three pre-roll and post-roll lengths available by pressing:

1. Only the preview button.
2. Shift + the preview button.
3. Ctrl + the preview button.

The lengths of each are pre-set in a dedicated section of the Setup window.

The top three preview buttons duplicate those in the Transport Controls edit section, which are also used for Playlist Editing mode:



Plays up to the edit point.

Plays through the edit point. = **PREVIEW** button on hardware controller.

Plays from the edit point.

NOTE: The “play through” preview is the one that lets you hear how the edit will sound in the Playlist. It also usefully resets the display to the edit point.

The “up-to” and “from” previews are useful for determining which side of the edit unwanted sounds may be.

The next three preview buttons play only the selected (highlighted) Clip, including its out-takes (the grey bits):



Plays up to the edit point.

Plays through the edit point.

Plays from the edit point.

You can cancel a preview while it is playing with a second press of its button



The loop button will cause the selected preview action to repeat continuously. You can continue to make adjustments while the preview is repeating.

There are also some special function preview buttons:



Plays the Out-takes - i.e. the grey parts of the clips around the edit point. This allows you to hear the sections you are “throwing away” for comparison.



Play entire track mode - this button can only be pressed when a single clip is in the Trim Editor. When pushed in, you will hear the whole source track - both coloured and grey areas - when playing or previewing in Trim.



Preview in context - when pressed, all previews will include the other audio in the source EDL as well as the current contents of the Trim Editor.

When you are happy with the adjustments, **WRITE-BACK** what you have done, as described below.

TOP-AND-TAILING AND DEFINING NEW CLIPS

When you load only one Clip into the Trim Editor, you can top-and-tail it by adjusting its in and out points with the mouse or hardware controller wheel in the usual way. Use the IN and OUT buttons (in the Transport Controls or on the hardware controller) to select which you are adjusting.



DRAW CLIP

To define a totally new Clip, load the Trim Editor with the Track from which the Clip is to come. You can do this either by loading the whole Track from the Clipstore, or by loading a Playlist Entry which is from the required bit of the Track. The DRAW CLIP button turns your mouse pointer into a pencil symbol. Drag it along the waveform profile from the new in-point to the new out-point to define a new Clip. Right-clicking will turn this function off. You can make fine adjustments by top-and-tailing the new Clip before giving it a new name (see below) and writing it back to the Clipstore, or pasting it into the Playlist.

NOTE: DRAW CLIP is only available when one Clip is in the Trim Editor.

When you are happy with the adjustments, WRITE-BACK what you have done, as described below.

ADJUSTING THE HOTSPOT

The Hotspot of each Clip is shown as a vertical red line which can be moved:



- by positioning the mouse over it and, when the pointer changes to a double arrow (↔), dragging it to a new position. The small time display will show the time you are setting.



- in the Transport Controls, by selecting HOT and EDL mode and using the scrubwheel.
- with the hardware controller, by selecting HOT and EDL mode and using the wheel.
- in the Clip Details window (see below).

When you are happy with the adjustment, WRITE-BACK what you have done, as described below.

RENAMING CLIPS

Double-click on the Clip name. A box will appear in which you can edit the name before writing the Clip(s) back.

FADES AND CROSSFADES

The lengths of fades of Clips in the Trim Editor can be adjusted



- by setting numerical values for them in the Clip Details window (see below).
- graphically, with the mouse on the profile display as follows:

At each in/out point there is actually a fade-in or fade-out (however short) and these fades have a start and an end.

Move the mouse pointer over the fade. It will change to a double arrow (↔).

You can then move the start of a fade to the left and the end of a fade to the right, so lengthening the fade and setting it to where you want over the audio.



- with the hardware controller, by pressing CROSSFADE to move the inner point (i.e. the end of a fade-IN or the start of a fade-OUT) and SHIFT + CROSSFADE to move the outer point (the start of a fade-IN or the end of a fade-OUT).

Fades are shown in lighter green on the profile and turn dark blue when selected to move. The type of fade curve can be altered in the Clip Details window for the Entry.

Once the fade-out of one Clip overlaps with the fade-in of the next Clip, you have created a **crossfade**. There are two useful tools available when there are two Clips in the Trim Editor:

ALIGN
FADESMIRROR
FADES

ALIGN FADES aligns the start of the later Clip's fade-in with the start of the earlier Clip's fade-out.

MIRROR FADES alters the length of the later Clip's fade-in to match the earlier Clip's fade-out. The shape of the curve is not copied.

Using both buttons will result in a matched crossfade between the two Clips.

NOTE: Hold down the Shift key when pressing these buttons to align or mirror the other way round - i.e. altering the earlier Clip to match the later one.

With two Clips in the window, selecting either fade automatically selects them both. Then the whole crossfade between two Clips can be moved easily in relation to the audio.

When you are happy with the adjustments, **WRITE-BACK** what you have done, as described below.

MAKING A LOOPABLE EDIT



LOOPABLE EDIT

The **LOOPABLE EDIT** button is only available if there are two Clips in the Trim Editor.

This function copies the fade at the start of the right hand clip to the start of the left hand clip, and similarly the fade at the end of the left hand clip is copied to the end of the right hand clip.

The normal situation for using this is when you want to make a single clip loop correctly. The procedure is as follows:

1. Roughly razor the clip to suit.
2. Make another copy of the clip in the EDL and Remove Gap to butt the two copies together.
3. Open the Trim Editor and load the two clips.
4. Perform the edit.
5. Pressing **MAKE A LOOPABLE EDIT** will copy the fade attributes for the edit that works to the outside points of the two clips. Now both clips are identical.
6. Write back to the EDL.
7. Make multiple copies of the clip to suit.

This would normally be with one clip duplicated, but it will work with different pieces of audio, but only if they have the same timestamps.

CLIP DETAILS



CLIP DETAILS

The Clip Details window for the selected Clip can be opened by pressing **CLIP DETAILS**, or by double-clicking on the Clip (an option in the Trim Editor section of the Setup window).

The Entry times in the window are fully interactive with adjustments to the profile in the Trim Editor. Other details can be adjusted here before the Clip is written back.

The Clip Details window is described in full in Chapter 4, *Arranging an EDL*.

WRITING BACK THE FINISHED EDIT

The Trim Editor is a temporary area for adjusting edits. Once done, the edit (and any other changes you have made) needs to be “written-back” to a Playlist or Clipstore which will then be updated.



WRITE BACK TO
SOURCE EDL

If you have loaded the Trim Editor from a Playlist, press **WRITE BACK TO SOURCE EDL** to update that Playlist. (It's a sauce bottle!)



COPY TO ACTIVE
EDL

If you loaded the Trim Editor:

1. From the Clipstore with a Clip that you now want to place in an EDL according to its Track time (recorded “time stamp”), or

2. From a different EDL to the one you want to write to,

Make the Playlist window containing the target EDL active, then press **COPY TO ACTIVE EDL**.

NOTE: Before you write back, as the EDL has not yet been updated, you can play it to hear how the edit was before your Trim Editor adjustment.



WRITE TO
CLIPSTORE

If you want to save the edited version of a single Clip in the Clipstore, press **WRITE TO CLIPSTORE**. You may want to rename the new version first.



WRITE TO PASTE
BUFFER

If you want to insert the edited version(s) of Clip(s) into a Playlist at an EDL time of your choosing, press **WRITE TO PASTE BUFFER** and then paste them into the Playlist.

NOTE: There is a Setup option (View menu; Setup window; Trim) to allow ‘Auto close trim window when writing back to source. This is often more convenient when you are using hotkeys or the Hardware controller, and helps you to avoid opening multiple Trim windows by mistake.

RE-LOADING

When you have finished working on one edit, and have written it back, you may want to keep the Trim Editor open to do another one.

NOTE: The following buttons on the Trim Editor's own toolbar re-load it with different Entries or Clips, whereas using the Trim Editor buttons in the Playlist and Clipstore again will open a second Trim Editor.



LOAD FROM EDL

LOAD FROM EDL re-loads the Trim Editor with the Entries selected (highlighted in red) in the Playlist or Text EDL.



LOAD FROM
CLIPSTORE

LOAD FROM CLIPSTORE re-loads the Trim Editor with the Clip selected in the Clipstore.



LOAD
PREV / NEXT EDIT

LOAD PREVIOUS EDIT / NEXT EDIT re-load the Trim Editor from the same EDL, moving one Entry backwards or forwards. Using these buttons you can easily move along the edits in the EDL to check or adjust them.



LOAD FROM PASTE BUFFER re-loads the Trim Editor with the contents of the paste buffer. This may have been cut or copied from any EDL/Playlist or Clipstore.

MAKING A NEW EDIT



Pressing the Trim Editor's own **RAZOR-CUT** button cuts all the Entries/Clips in the window at the current time position (and can be done on the fly while playing back). This has the same effect as having razor-cut them in the Playlist and loaded all the edits so formed into the Trim Editor. You will need to have written back your previous edit adjustment first, unless you are... ..

WRITING BACK AUTOMATICALLY

In the Trim Editor section of the Setup window, you can select the option to write back the contents of the Trim Editor to the current Playlist automatically each time it is loaded...

- with the **LOAD NEXT/PREVIOUS EDIT** buttons or
- by using the **RAZOR-CUT** button.

This makes it quick and easy to work through an EDL while staying within the Trim Editor, if you wish.

NOTE: Loading with any of the other buttons does not write the current edit back automatically. This is so that if you make a mess of an edit in the Trim Editor, you can reload it from the Playlist and try again.

MAINTAINING SYNC.



The **LOCK CLIPS** button prevents you from selecting and moving the body of Clips or Entries while they are in the Trim Editor, and therefore safeguards accidental loss of sync. to picture or sync. with music when writing back. If the global **LOCK ENTRIES** button on the Playlist toolbar is down, this button in the Trim Editor will be down when it is loaded from that Playlist. You can then release the button to override the lock status for this edit only.



The **SLIP LEFT** and **SLIP RIGHT** buttons only apply with one or with two Entries loaded.

The logic these buttons follow can be set with a Setup option.

Under the View menu, select Setup Window, then click on **Trim** on the left side of the setup window.

TRIM SLIPS AUTO-FOLLOW EDL SLIP SETTINGS

- When this is **ticked**, the positions of these buttons on opening the Trim Editor will reflect the **SLIP** setting of the Playlist. They can then be changed to override the setting for this edit only. **SLIP LEFT** will cause EDL Entries before the earlier one in the Trim Editor to move with it when writing back. **SLIP RIGHT** will do the same for Entries after the later one. With this setting, you only have one global Slip setting to consider for Playlist movements, Playlist editing and Trim editing.
- When this is **not ticked**, the positions of these buttons are completely independent from the **SLIP** settings in the Playlist. The settings of these buttons are held over for future Trim sessions. You might want to use this setting if, for instance, you do most of your editing inside the Trim Editor and only perform coarser manipulation in the Playlist window. This setting is perhaps more familiar to SADiE v2 users.

Note: If you are working with sync. material you will want to keep Playlist and Trim Slips OFF, so that slipping one Entry doesn't alter the sync. of others. If you are working with sound-only material (like editing for radio) you will need to keep Slips ON to avoid gaps opening up in your material as you edit. Remember that Slip is disabled when writing back from a Trim Editor containing more than two Entries; if you need to slip, use Playlist Editing instead.

OTHER TRIM EDITOR TOOLS



SNAPSHOTS

The four SNAPSHOT buttons allow you to store and recall four different arrangements of the Clips in the Trim Editor, so you can compare different attempts at an edit. Click once to take a snapshot, and the button will turn blue to show it has a snap stored. After making adjustments, click on the button again to return the Trim Editor to the stored snap. The button of the displayed snap will turn red. To overwrite a button with a new snap, hold Ctrl. while clicking on it.

NOTE: Even if you don't use the snapshots, you can write back an edit to the EDL, try to improve it and write back again. Then the Playlist undo and redo buttons can be used to move through the different attempts. Any of these can then be reloaded into the Trim Editor.

USER



ZOOM



RETURN

The USER ZOOM button turns your mouse pointer into a magnifying glass which you can use to draw a box around the part of the profile you want to zoom-in on. The degree of magnification will be determined by the size of the box you draw. The RETURN button takes you back to your previous magnification level.



EMPTY TRIM
EDITOR

Empties the Trim Editor of all Clips/Entries.

The VIEWING ORDER button is available with more than two Clips in the window.

When it is UP, the left channels of all the stereo Clips in the Trim Editor are displayed above all the right channels.

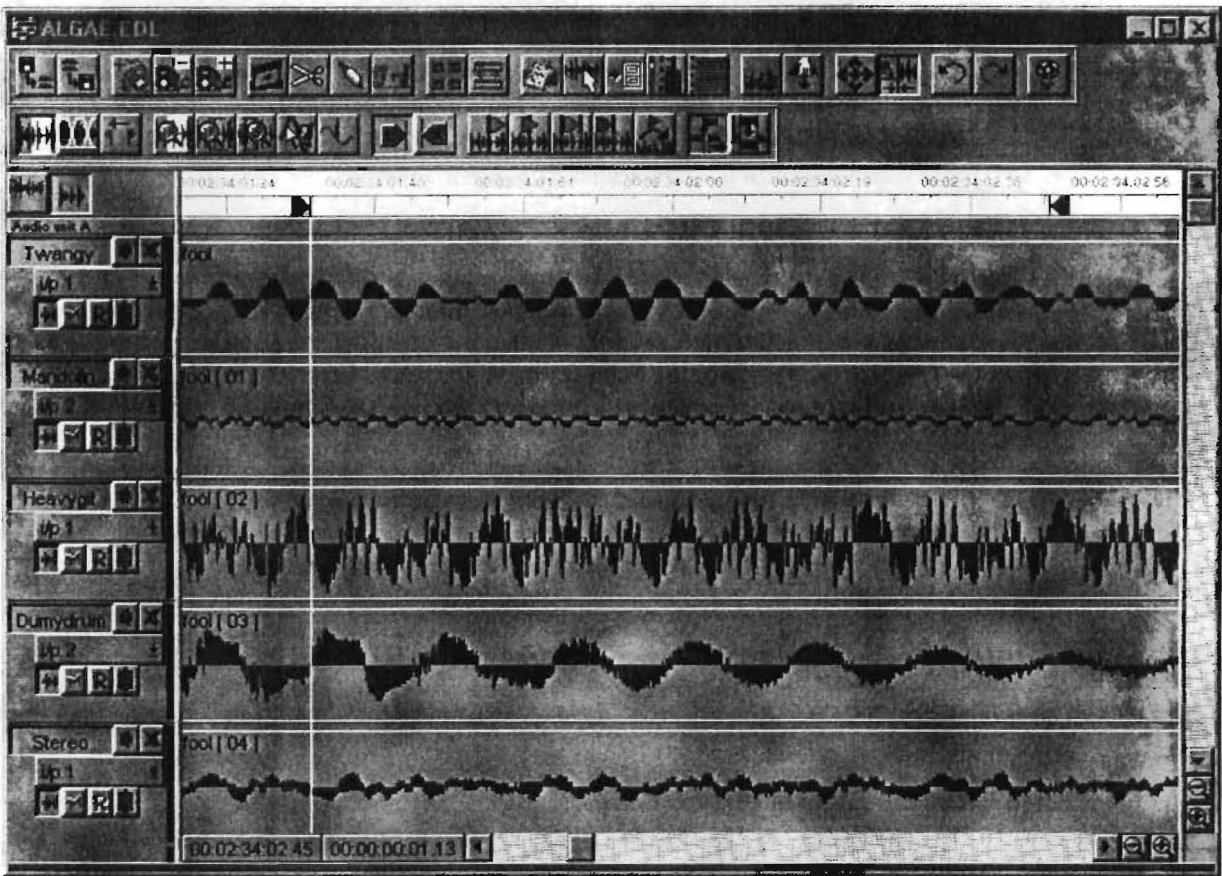
When it is DOWN, both channels of each Clip are drawn together.



VIEWING ORDER

NOTE: For most editing, it is generally sufficient and clearer to just view one channel of each Clip. This is done with the button up, setting the window's size and magnification to show just the left (or right) channels of all the Clips in it. Have the button down when you want to see both channels of each Clip.

REGION EDITING



Region Editing adds another set of editing tools to your palette. The basic principle of Region Editing is that you firstly define a 'region' of the playlist, and next perform another action on that region - you may want to delete it, or move it or copy it elsewhere for instance. The region is defined between the standard Left and Right Locators, and usually across all streams enabling you to more easily edit across all streams of a multi-track.

You could use the region editing tools for removing a section of a multi-track, or for moving it or copying it elsewhere. Another possible use for region editing is for simple speech editing tasks - where you otherwise may use razor cutting and playlist editing, defining a region and deleting it can be very quick, particularly for repetitive tasks. Region editing functions are available on hotkeys, and this can speed up operation significantly.

ENABLING REGION EDITING

To access Region Editing first you must be able to see the Region Editing Toolbar.



If this is hidden, then this can be revealed in the usual way:

From the **View** menu, select **Toolbars**, then **Playlist**, then click on **region editing**. The above toolbar will appear, and in the usual way you can dock it to an edge of the Playlist or allow it float, by dragging it around the desktop, or by right mouse clicking and selecting, for instance 'dock to top'.




To enable Region Editing, press the Left most button (or top-most if the toolbar is docked vertically) **Region Editing Enable** - region editing is turned on when the button is pressed in.

DEFINING THE REGION

Defining the Region with the mouse



The mouse cursor will change to a pencil  tool which signifies that you are ready to define a new region.

To define a Region - when your mouse is the pencil  tool, click at the position in the Playlist where you want the region to start - it doesn't matter which stream you are over when you click - anywhere between the time bar and the bottom of the Playlist will do - then whilst holding the mouse button down, drag the region rightwards, and when you reach the point at which you want the region to end - let go of the mouse button. The region will be coloured RED, and you'll notice the Left and Right locators are positioned at the start and end of the region respectively.

To help you mark the region, you will notice that the two time displays at the bottom left of the playlist will be displaying current cursor position and the duration of the region respectively.

You can also start at the end of the region and drag leftwards towards the start - whichever method is most convenient.



Defining the Region with Hotkeys and Hardware controller


All the region editing functions can have Hotkeys assigned. Notice that the Preview buttons are linked to the Transport - Edit controls; preview buttons, and similarly the **Select Region Start & End** buttons are the same as the **In** and **Out** buttons.


Having enabled region editing, you can set the region start by setting the **Left** locator, and the region end with the **Right** locator, in the usual way.


A most important factor is that the region doesn't have to start at an entry's start point - it can begin anywhere in the playlist and can contain any number of entries. Under normal circumstances in SADiE, we are manipulating EDL entries or clips, but that's not the case at the moment in region editing.


To see the sort of thing we can do next - just press the **Delete** key on the keyboard. Assuming you have autoplacement and slip off, you will see the region disappear, and razor cuts are made to tidy up the ends of the entries left behind.

Try a few more things - undo to put the region back, now set SLIP to be **RIGHT** (See Chapter 4 - Arranging an EDL - Autoplace and Slip). Now press **Delete** again. This time the region disappears, but the hole is filled in by slipping everything to the right, leftwards.

Define another region - you will still have the pencil cursor. This time press the  **CUT** button using the mouse. The same thing as before will happen - the region disappears and entries move






leftwards to fill the hole. Now go to the end of the playlist and press **PASTE**  and the mouse cursor changes to the usual paste icon - clicking in the playlist will now drop a copy of the whole

region into the Playlist. Of course you can use the **COPY**  button to leave the original region unchanged (and un-razored) and allow you to paste a copy of the region elsewhere in the list.

Note: You may want some streams of the EDL to be unaffected by any region editing. Region editing only works on streams that are enabled (lighter grey) so to make the region ignore a stream press its  stream name button so that it's in the 'out' position. (See Chapter 4 - Arranging an EDL - Enabling/Disabling Streams). With region editing the 'CTRL-enable' function (clicking on a stream name button while pressing the CTRL key on the keyboard) can be a quicker method of enabling the correct stream - this function is a 'reverse' function and disables ALL streams apart from the one you've CTRL-clicked on.

ADJUSTING THE REGION

There are many ways of adjusting the region's bounds once you have defined it.

1. Clicking with the mouse outside the region, gives you the pencil tool again, and will start making a new region. You could use this method to redraw the region from scratch again.
2. Pressing the  reset region markers button, will remove the region completely, and so you can redraw it from scratch again.
3. When the mouse is close to the start or end of the region, the mouse cursor will change to a  left pointing or a  right pointing arrow shaped cursor. Clicking and dragging this point allows you to adjust either the region start or end.
4. The region start and end are the Left and Right Locators, so changing these, in the Transport Controls / L&R pane in the usual way will adjust the length of the region.
5. You can scrub the start and end of the region - either using the Transport controls, Edit pane jog wheel, or using the Hardware controller wheel. The  and  buttons determine which end of the region is being scrubbed.

The Region Editing toolbar has three tools which help you zoom in on the relevant part of the region - the whole region or its start or end. - quickly.

Zoom in on region - changes the zoom so that you can see the entire region in the playlist



RESET
REGION
MARKERS



ZOOM IN
ON REGION



ZOOM TO
REGION
START/END



SELECT REGION
START / END



Zoom to region start & Zoom to region end set the zoom to horizontal zoom 15 so you can see some detail on the entries at the start and end of the region.

In a similar way, the **Select Region start** and **Select Region end** buttons move the focus to the start and end of the region without changing zoom. Note that the Hotkeys to operate these buttons are the same as for Transport - EditControls; **Go to In** and **Go to Out** respectively.

PREVIEW TOOLS



REGION PREVIEWS

operate around the selected point of the region - start or end as set by the  and  markers, and as you would expect from the icons, they play up to the point, through the point, the whole region, and from the point respectively



PLAY EDIT
WITHOUT
REGION

Play Edit without Region is a special preview tool, which performs a dummy edit, then previews it. On pressing this button, the playlist will re-draw itself, as if the region had been deleted, then preview from before the Left marker to after the Right marker. Having previewed, the playlist will undo this dummy edit, and draw itself back to where it was beforehand. You would normally use this tool with SLIP on, otherwise this preview will play silence for the duration of the region.

OTHER REGION EDITING TOOLS



RAZOR CUT
REGION

Razor Cut Region puts a razor cut at either end of the region, and turns off region editing.

Region Insert Mode and **Region Overwrite mode** determine what happens when you paste a region into the playlist. First you have to cut or copy a region to the paste buffer.



REGION
INSERT MODE

In **Insert mode**, when you paste a region into the playlist, a razor cut is made across the playlist at the paste position you selected, then the region is pasted at that position. Any entries underneath the region remain as they were. BUT - if you are in **Slip** (which is really how this mode is supposed to be used) then - for instance with Slip Right enabled - the entries to the right of the paste position are slipped left by the length of the region - in other words, the playlist is razored in half and slipped to make room for the region.



REGION
OVERWRITE
MODE

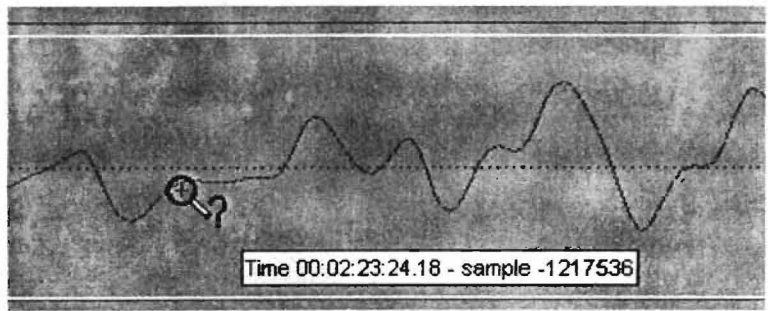
In **Overwrite mode**, when you paste a region into the playlist, entries underneath the region are razored and deleted to fit the region in. This mode is not supposed to be used with Slip.

Note that Insert and Overwrite have no effect if Region Editing is turned off - the normal rules for pasting clips into the playlist apply.



SHOW SAMPLE
VALUES

Show sample values is a tool that is not specific to Region editing (in fact you have to turn Region editing off to use it).



When this button is pushed, AND the playlist is displaying at one of the highest three horizontal zoom levels, then the cursor changes to a 'magnifying glass' and passing this over the waveform displays the time of that sample and its sample value as a 24bit number i.e. a decimal number between -8388608 and +8388607. Holding the SHIFT key down while using this tool will show the sample value as a hexadecimal number



Cedar De-Click This is an optional Plug-in that uses region editing for it's manual mode of operation. (See the *Plug-Ins* section of Chapter 6 - *Mixing and Processing* for more details)

6 - MIXING AND PROCESSING

THE MIXER

DESCRIPTION

The Mixer window in SADiE™ routes audio signals between the currently active Playlist and the outside world. On each Stream you can control levels, pan positions and auxiliary sends as well as process the audio - for example by applying EQ or compression.

- You can:
- 1. Set and leave these controls when playing back an EDL.
 - 2. Adjust them in real time during playback.
 - 3. Record the adjustments you make and have them reproduced using the Automation described later in this chapter.



If you have closed the Mixer for your current Playlist, you can display it again with the **SHOW MIXER** button on the Playlist toolbar.

NOTE: In addition to using the faders of the Mixer to control the playback levels of Streams, you can set the level of individual EDL Entries. See “Clip Details window” in Chapter 4, *Arranging an EDL*.

The Mixer is made up of channel **strips** which each have an input and an output. The simplest Mixer strip consists of a fader, a pan control and an input selection button whose label indicates what that strip is controlling. Other displays and buttons may be added to the strips.



This is the Mixer’s configuration toolbar. If it is not currently displayed on your Mixer, you can bring it back with View | Toolbars on SADiE’s menu bar.

The first six buttons add or remove displays for every strip:-



Fader grouping buttons. See below.



Inline process buttons. Each button represents a blank section into which you can insert processes like EQ and dynamics for each strip (see Processing, below). To reveal more buttons, enlarge the Mixer window vertically.



Strip output selection buttons(see Routing, below).



Phase reverse controls (see below)



Peak level / fader level displays.



Displays ‘long faders’. In this view, all faders are twice as high as usual and thus have a twice the resolution - moving the fader with the mouse will give you 0.20db steps instead of 0.40db as in the normal view.



The last five buttons turn on or off other Mixer displays:-



Turns on Mixer automation and displays the automation toolbar (see Automation).



Displays the Process Palette toolbar from which you choose which processes to insert into a Mixer strip (see Processing) and lets you add new strips to the Mixer (see Routing).



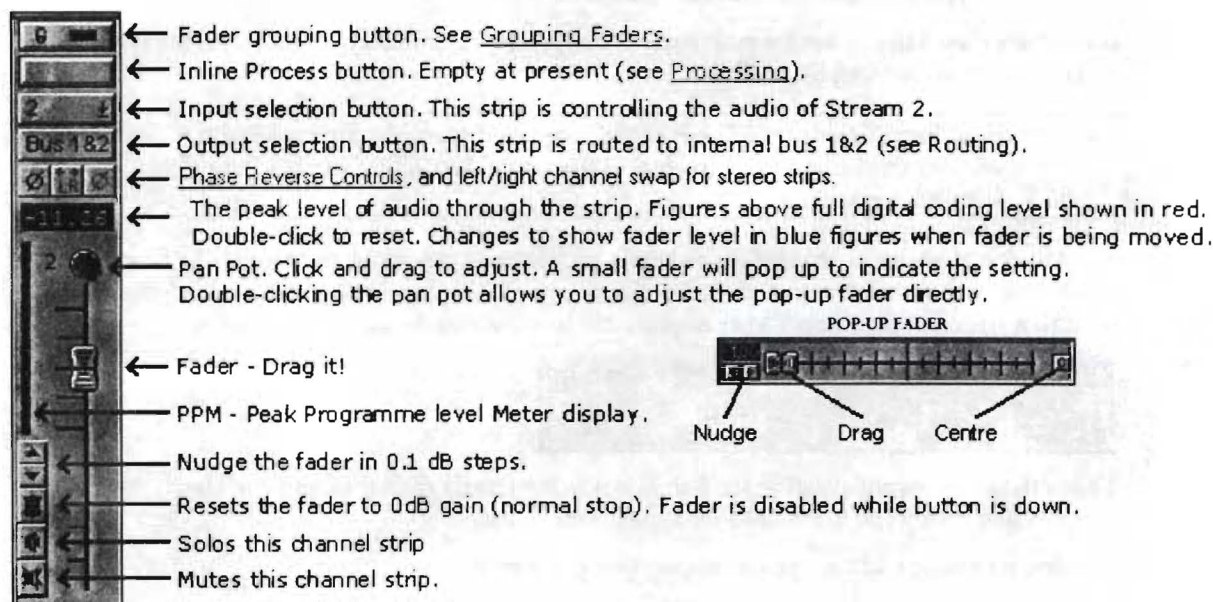
Displays the Routing toolbar.



Brings up the Process Window, which acts as an “outboard rack” for other processes. See Processing.

Shows the Metering Window (see this chapter, page 49)

So Mixer strip number 2, with all its display sections, might look like this:



Each hardware controller fader panel has eight faders which control the Mixer strips indicated by the LEDs above them.

ASSIGN + → and ← select the next and previous bank of eight Mixer strips for control by the eight faders.

SHIFT + a fader's SELECT button allows you to reassign a single fader to a different Mixer strip. Move the fader and the LED changes to indicate the new strip. When you let go of the fader, it is reassigned. Use this to set the function for the single fader on the edit panel - perhaps to control a stereo master strip.

A MUTE button is provided for each strip.

SHIFT + MUTE solos the strip.

ASSIGN + ↑ changes all the faders from controlling level to controlling the Pan Pots. The LED at the top left will display “Pn”

ASSIGN + ↓ changes back to level control. LED shows “Fd”.

NOTE: As you will see from the following sections, the Mixer is very flexible. You can save any Mixer configuration for later recall. See Chapter 7, *File Management*.

GROUPING FADERS



To link (or “gang”) on-screen faders so that they move as a group, press the FADER GROUPING button on one of the strips. It will flash. You can then press the grouping buttons of other faders you want linked with it. They will light up indicating that they are part of the group. Finally release the flashing button. Moving any of the faders in the group will now move them all and their buttons will light to indicate the link.

Faders can be set at different levels before being linked and the offset between them is calculated so that they reach the bottom of their travel (fade out) together. This maintains relative stereo positions. Pressing any of the linked group’s fader reset buttons will lose the relative offsets.

To change the level of only one fader within a group, move it whilst holding down the keyboard Shift key.

To remove a fader from a group, select one of the others in the group, then release the button of the fader you want to remove. Finally release the flashing button.

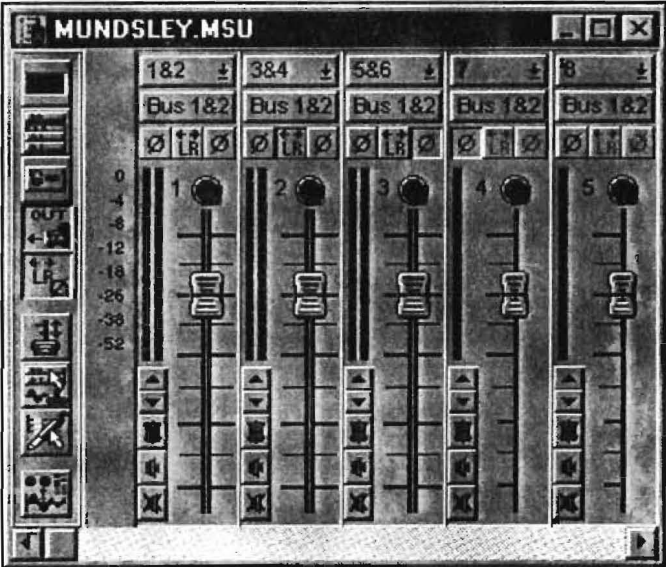


NOTES: You can make as many groups as you like, but each fader can only be in one group. Mute, solo and fader reset buttons are also linked. Hardware controller faders are not affected by grouping when moved physically; the feature is designed to make it possible to move more than one fader with a mouse. The best way of grouping hardware faders is with your fingers!

PHASE REVERSE CONTROLS



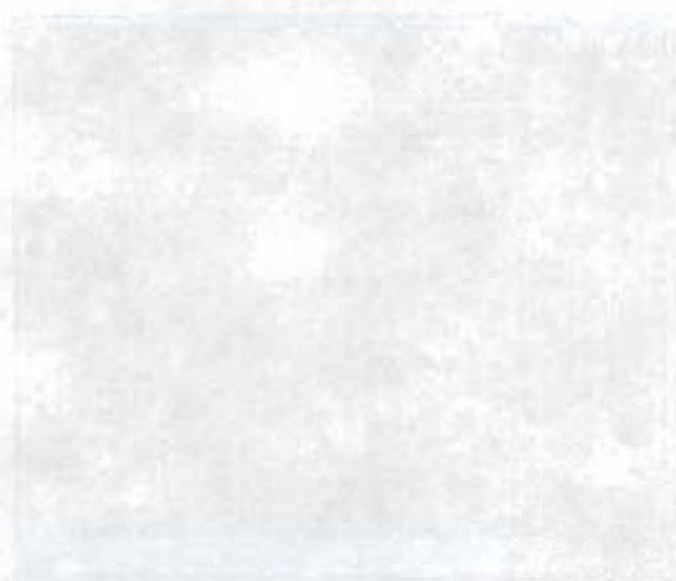
The Phase Reverse Controls button on the mixer configuration toolbar, enables another set of buttons for each strip in the mixer.



These buttons allow you to reverse the phase of the audio through the strip, and in the case of stereo strips, the button in the middle will **swap** the left and right sides of the stereo signal through the strip.

If the button is pushed in and red, then the function is ON. Grey buttons cannot be selected.

Because these are potentially dangerous buttons if selected by mistake, there is an option in Setup, on the 'Miser Strip Display' sub-section of the 'Mixer' page to **ENABLE PHASE CONTROLS**. When this is not ticked, the phase controls cannot be displayed.



MIXER PROCESSING




INSERTING PROCESSING IN MIXER STRIPS

To allocate processes to a Mixer strip, and therefore to process the audio going through it, display the Process Palette toolbar.

This shows you all the available processes you can insert inline on individual Mixer strips:-

Simply select a process on this palette, drag it across and drop it onto an inline process



EXP

GATE

RUX

EQ

EQ

EQ

EQ

EQ

CMP

MS

MONO

MONO

STEREO

← Expander

← Gate

← Auxiliary send

← High-Pass EQ (Low cut)

← High-shelf EQ

← Band-pass EQ (bell)

← Low-shelf EQ

← Low-pass EQ (High cut)


← A compressor

← MS Decoder

← The last three items are used to drag across and insert new Mixer strips. These can be mono without pan, mono with pan, or stereo strips.

Simply select a process on this palette, drag it across and drop it onto an inline process button on the Mixer strip. Repeat to build up the processing you want for that strip. The audio path through the strip is from top to bottom so the signal encounters processes inserted at the top first.

So, if you wanted to apply compression, followed by two bands of EQ, and then take an auxiliary send from the audio on Stream 4 of your Playlist, you would insert those processes into the Mixer strip controlling Stream 4. It would then look like this:-



← Inline Process: Compressor

← Inline Process: High-pass filter (Low cut)

← Inline Process: Band-pass (bell)

← Inline Process: Auxiliary send

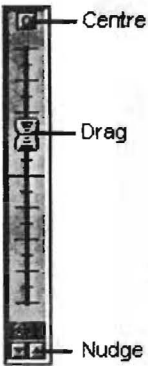
← Processing is being applied to Stream 4.

To remove an inline process from a strip, right-click on its button.

ADJUSTING MIXER PROCESSING



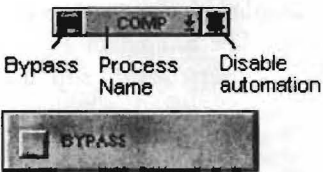
Click on any process button in the strip. This will bring up a scrolling display of the controls for all processes in the strip.



The controls on the screen appear as familiar rotary knobs. Click and drag the mouse up or down to adjust them. A small fader will pop up temporarily to indicate the adjustment and the numerical display on the right will indicate the exact setting value. Double-clicking keeps the pop-up fader on view and allows you to adjust it more finely (click on a grey bit of the window to lose it again). You can also adjust the setting by entering a value directly into the numerical display in any of the following ways:-

- 1. Click, hold and drag the mouse up or down over the digits (on either side of the decimal point, where there is one). Their value will increase or decrease - the more you move the mouse, the faster they change. Release to set the new value.
- 2. Use the up/down arrows beside the display to nudge its value by whole units. Hold Ctrl to nudge by decimal points.
- 3. Double-click on the time display itself and directly type in a new value ending with the keyboard Return/Enter key.

At the top of each section are three buttons:



- A bypass button for that section.
- A name button that lets you change the section to another process.
- A button to disable the automation for that section

There is a bypass for all processing at the bottom of the whole display. There is a Setup option, in the 'Mixer Strip Display' sub-section of the 'Mixer' page, that allows you to alter the function of this bypass button so that only EQ's are bypassed, thus leaving dynamics, Aux sends and M&S unaffected.



Press SELECT above the fader of the strip you want to adjust. The number of the strip will appear in the LED above the Rotary Shaft Encoders (Knobs to you and me).

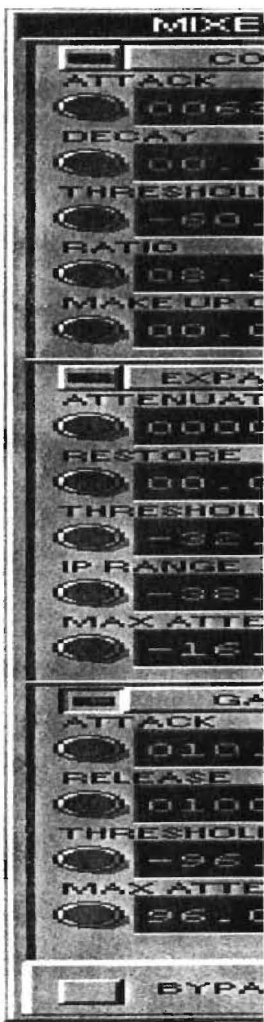
↑ and ↓ then move through the processes on that strip, selecting each in turn for adjustment and outlining its display.

EQ and CMP select the EQ and Compressor sections directly.

The knobs A to F now control the on-screen knobs in the selected process, from the top downwards.

ASSIGN + MUTE above the relevant fader bypasses all processing.

The DYNAMICS processing has been designed to sound and act as much like a traditional analogue studio unit as possible, with a slightly “soft knee” to produce a natural effect.



The COMPRESSOR reduces dynamic range by reducing its gain in proportion to the level of the signal - the higher the level, the more gain reduction.

- ATTACK sets the delay after a transient (peak) before the compressor starts reducing the level.
- DECAY The time after the transient before level is returned to normal.
- THRESHOLD The level above which compression is triggered.
- RATIO The amount of gain reduction then applied.
- MAKEUP GAIN Boosts output level to compensate for overall gain reduction Be careful as it will go very loud!

The EXPANDER increases the dynamic range by reducing its gain in inverse proportion to the level of the signal - the lower the level, the more reduction.

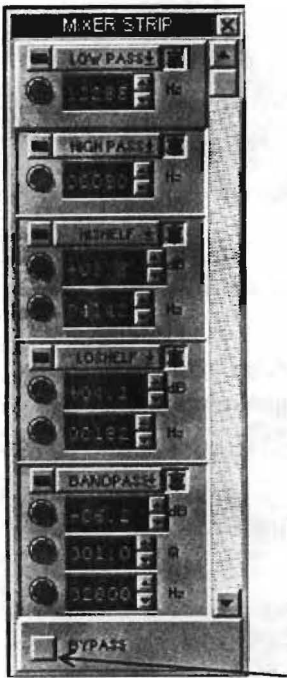
- ATTENUATION The delay between the signal dropping below the THRESHOLD and gain being reduced.
- RESTORE The delay between the signal exceeding the threshold and gain returning to normal.
- INPUT RANGE The input level range between the expander starting to operate and reaching its maximum gain reduction.
- MAX ATTEN. The maximum gain reduction.

The GATE reduces the output by a fixed amount when it falls below a given THRESHOLD.

- ATTACK The delay between the signal dropping below the threshold and the gate “shutting” and reducing the level.
- RELEASE The minimum delay before the gate will reopen.
- MAX ATTEN. The amount of gain reduction when the gate is operating.

BYPASS Bypasses all processing on this Mixer strip (ASSIGN + MUTE on hardware controllers).

SADiE's **EQUALISER** is divided into five sections with different slope characteristics. The frequency controls of all sections cover the full audio bandwidth of 20Hz to 20kHz. Here is a control strip with all five sections:



A low-pass filter (steep high frequency cut) with a slope of 12dB/octave. and

A high-pass filter (steep low frequency cut) with a slope of 12dB/octave.

The frequency controls set the -3dB point.

High-shelf EQ (high frequency cut and boost) -60dB to + 20dB. and

Low-shelf EQ (low frequency cut and boost) -60dB to + 20dB.

The frequency controls set the -3dB point.

Band-pass EQ (bell-shaped boost and cut) -60dB to + 20dB.

The frequency control sets the centre frequency. The Q control sets the bandwidth. Higher Q = narrower bell.

The cut and boost controls operate symmetrically apart from at the extremes, where the -60dB cut is provided to allow “notch” filtering with high Q settings.

Bypass button for all processing on the strip (ASSIGN + MUTE on hardware controllers).

Full frequency plots of the equaliser are provided in *Appendix D*.



The **AUXILIARY SEND** level knob can be adjusted on the Mixer strip as well as on the full control display.

The routing button allows you to route the signal either to an internal bus or to the outputs - SADiE XS/XACT users will probably use outputs 3&4 (see Routing).

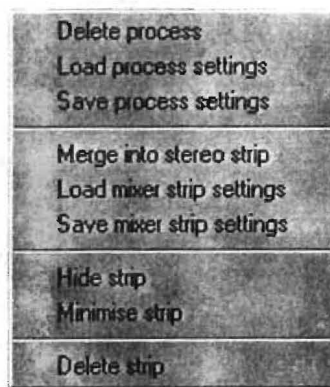
Note that the bypass button for this section acts as Aux. Send on/off.

SAVING SETTINGS

To save the layout of the Mixer, save the Mixer setup file. This can be done with the File | Save command when the Mixer is the active window, or from the Project window, as described in Chapter 7, *File Management*.

NOTE: Processing control settings are saved as part of the Mixer automation, described in the section later in this chapter.

You can also save Process settings and Mixer strip settings for a single strip. Right mouse click on the process section of a strip and this menu drops down:



Save process settings saves the pot settings for a single process, which can be reloaded into the same process or one on another strip.

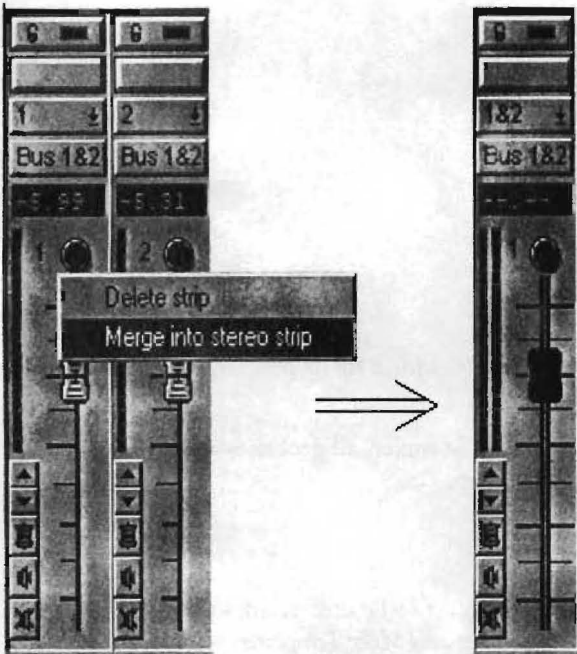
Save mixer strip settings saves the whole mixer, all processes and their pot and fader settings, which can be reloaded onto another strip.

TEMPLATES

If you wish to save your customised Playlist to be used again, save it as a **TEMPLATE** using the **FILE** menu option. See *Chapter 9 - Playlist and Mixer Templates*.

PROCESSING STEREO

To apply processing equally to the two channels of stereo material, it needs to be routed through a stereo Mixer strip. You can merge two mono Mixer strips into a stereo one by right-clicking over the fader:-



Then insert the required processing In the stereo strip.

MS DECODER



The **MS DECODER** allows you to simply convert audio recorded as Mid and Side into its Left and Right components.

The knob lets you adjust the stereo width, and there is a push button for **SWAP INPUTS** in case the Mid signal is on the right side of the stereo recording. As with **AUX SEND** the knob can be adjusted on the mixer strip without opening the whole process strip. This process can only be added to a Stereo strip.

ROUTING

DESCRIPTION

The default routing arrangement in SADiE will cover normal recording, editing and mixing tasks, but the system is very flexible and can provide many more facilities.

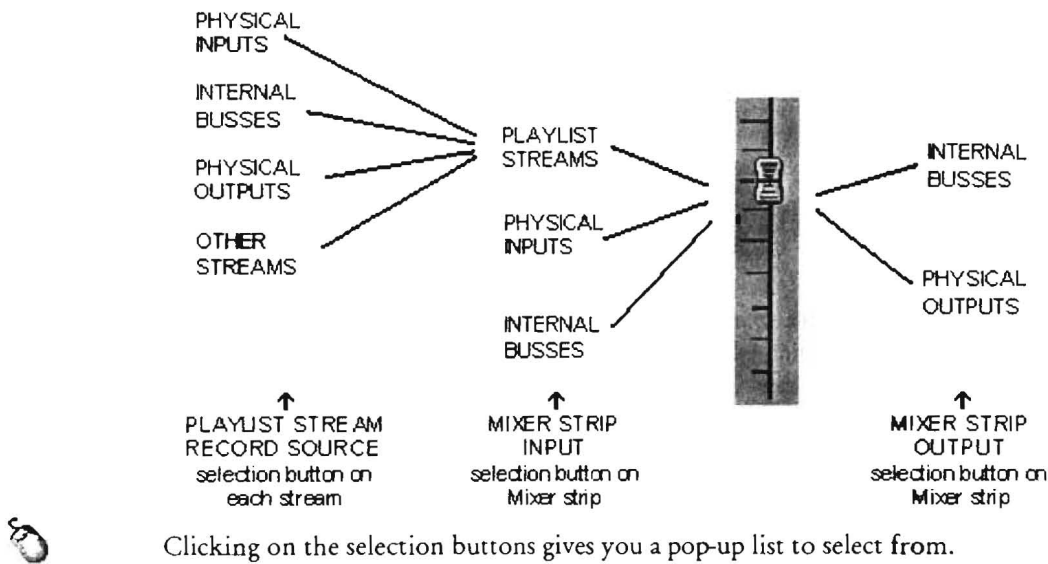
Creating other routing arrangements is like making connections between the different items of equipment in a studio.

Connections are made in two ways:

1. By selecting from a list of possibilities for the inputs and outputs of Mixer strips and for the recording source for Playlist Streams.
2. By using the Routing toolbar described below.

Note that Routing is described in a step-by-step manner in a Tutorial at the end of this chapter.

The following diagram shows all the possible connections that can be made between the physical inputs, the Playlist, the Mixer strips, internal busses and the physical outputs. The Mixer's internal busses can be thought of as potential subgroups waiting to be used and will allow you to route signals through extra Mixer strips and thus to different parts of the system.



Clicking on the selection buttons gives you a pop-up list to select from.

The common default routing arrangement in SADiE is to have Playlist Streams recording directly from the physical inputs and each Stream playing through a Mixer strip. These are then routed to two more strips, acting as master faders (via internal busses 1&2), and then to the required outputs. In other words:-

INPUTS → PLAYLIST STREAMS' RECORD SOURCE (selected on the Stream record source buttons), and

PLAYLIST STREAMS → MIXER STRIPS → INTERNAL BUSES 1&2 → "MASTER FADER" STRIPS → OUTPUTS

For 8 streams, this is done as follows:

MIXER STRIPS	STRIP INPUT	STRIP OUTPUT
1-8	PLAYLIST STREAMS 1-8	BUSSES 1&2

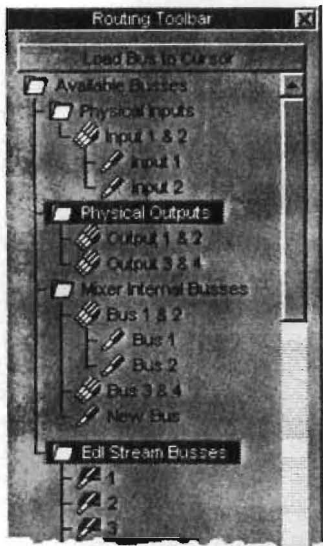
9	BUS 1	PHYSICAL OUTPUT 1
10	BUS 2	PHYSICAL OUTPUT 2

If you prefer, you can have a single stereo strip for the master fader instead of two mono strips. Merge them together by right-clicking over the left-hand one's fader. Repeat to separate again.

Other arrangements can be achieved by using more internal busses. Selecting "New Bus" on any of the routing selection buttons creates a new, automatically numbered bus that can then be picked up by all other selection buttons.



The routing toolbar is displayed by pressing the button on the Mixer configuration toolbar.



This displays the busses you are using. Double click to open up the folders for each type of bus. Double clicking on stereo busses will reveal two mono busses. Double-click to close again.

You can make routing connections from here by selecting a bus, hitting "load bus to cursor" (or by simply dragging with the mouse) and then "dropping" the other end of your imaginary patch cord on: a Mixer strip input or output button; a Process Window unit's input or output button; or a Stream record source button. Doing this with "New Bus" will create an automatically numbered new bus.

Naturally, you can only connect stereo busses to stereo strips/Streams, and mono busses to mono strips/Streams.

...etc

want more strips in your Mixer to accommodate the new busses. To add a new strip, drag across one of the following symbols from the Process Palette and drop it where you want to insert it.



- Mono fader strip without pan pot. Output will be mono.
- Mono fader strip with pan pot. Output will be stereo.
- Stereo fader strip with balance (offset) control. Output will be stereo.

To delete a whole strip, right-click near the fader. This also lets you change the fader's appearance. Here are some suggestions for routing arrangements:

EQ/DYNAMICS ON RECORDING

Instead of routing the physical inputs directly to the Playlist Streams for recording, you can route them via a Mixer strip. This allows you to apply EQ or Dynamics processing before the material is recorded onto the hard disk. The extra routing required would be:

INPUT → NEW MIXER STRIP → NEW INTERNAL BUS → PLAYLIST RECORD STREAM

BOUNCE-DOWN

To mix together and re-record selected Streams:

REQUIRED PLAYLIST STREAMS → MIXER STRIPS → NEW INTERNAL BUS → RECORD STREAMS

To bounce the whole Playlist, or soloed Streams: OUTPUTS → RECORD STREAMS

SUB-GROUPING STREAMS FOR PROCESSING

REQUIRED PLAYLIST STREAMS → MIXER STRIPS → NEW INTERNAL BUS → NEW MIXER STRIP (with processing) → INTERNAL BUSSES 1&2 → MASTER FADER STRIPS → OUTPUTS

EFFECTS SENDS AND RETURNS

MIXER STRIP AUX. SENDS → SPARE OUTPUT → EXTERNAL DEVICE → INPUT → NEW MIXER STRIP → MONITORING OUTPUT

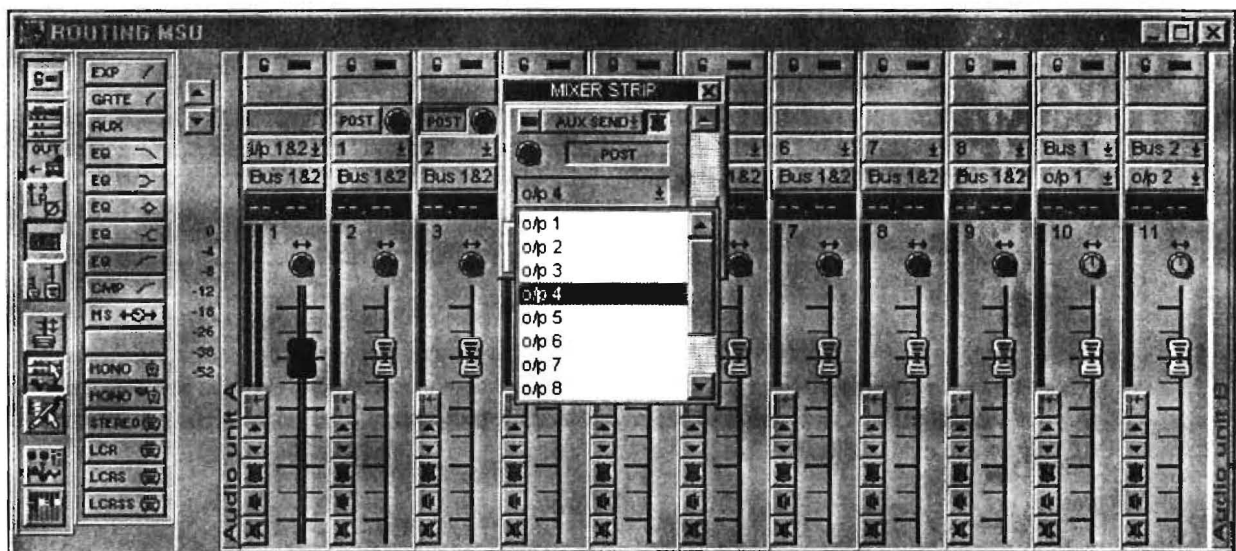
Note that you do not have to have SADiE in record to monitor the effect return when it is routed like this.

Or, if you want to record the effects return:

MIXER STRIP AUX. SENDS → SPARE OUTPUT → EXTERNAL DEVICE → INPUT → NEW MIXER STRIP → NEW INTERNAL BUS → RECORD STREAM

EXAMPLE

Here's an example of a mixer with Aux Sends set up for routing through outboard equipment :



This is a relatively minor customisation of a normal 8 into 2 mixer. In this example I'm assuming you want to patch in an external reverb unit.

To create this:

1. If the toolbars don't look quite like the picture, press {bmc mix_op.bmp} to show the output buttons, {bmc mix_inli.bmp} to show the mixer process slots, {bmc mix_pall.bmp} to show the process palette toolbar.
2. From the process palette, drag and drop {bmc stereo.bmp} a new stereo fader onto the mixer (this is strip 1 in the picture) and {bmc auxbutt.bmp} an Aux send onto each of the next two strips for streams 1&2.
3. Press the output button on the the new stereo fader and select Bus 1&2.
4. Press the Aux send button (it will say 'Pre' at the moment and have a blue pot on it) on strip number 2 (i.e. for stream 1) and the Mixer Strip will pop up, as in the picture (although the picture is displaying the mixer strip for strip 3). Press 'Pre' and it will change to 'Post' and press the button marked 'Output 1' and change it to 'Output 3'.

5. Do the same for the next strip (strip 3 for stream 2), but this time choose 'Output 4'.

Note: The example I am describing here is assuming a stereo clip on stream 1&2 is to be sent to, for instance, an external reverb, and that this reverb has stereo inputs. If the reverb has mono in and stereo out, then you should route both of the Aux Sends to Output 3. There are a number of alternative ways of routing a mixer to achieve this or similar but this method should show you the basic idea.

6. Connect up your reverb unit. Connect SADiE's outputs 3&4 to the inputs of the reverb, and connect the outputs of the reverb into SADiE's Input 1&2. Whether you do this as an analog or digital connection will depend on your situation. If it's analog then just check your Input source selection in Audio Settings. If it's digital then you will have to consider clocking.

Note on clocking:

To send audio out from SADiE, through a digital connection to an external unit, and then back into SADiE, you will need to consider which unit - SADiE or the external unit, is the master for digital audio clocks.

One method is to assume (or check rather !) that the external unit will lock to its input. If SADiE were to do the same, then this would cause a feedback loop - SADiE's locking to the reverb, which is locking to SADiE, which is locking to the reverb, which is To avoid this you should set SADiE to Internal Clock (go to the VIEW menu; Setup Window; double click on 'Audio'; Further Audio Settings; Clock Source - select INTERNAL). Set SADiE's input selection to AES (or SPDIF) in Audio settings. Alternatively, if the external unit can be a master clock, then you would set SADiE's clock source to Genlock and select Input 1&2 as the source.

Now, when you play SADiE, the Aux sends control how much of the signal on playlist streams 1&2 are sent to the reverb, and the Fader on strip 1 controls how much reverb is returned into SADiE's mix. The last two strips of the mixer still control overall level because the reverb is fed back into the master bus (Bus 1&2).

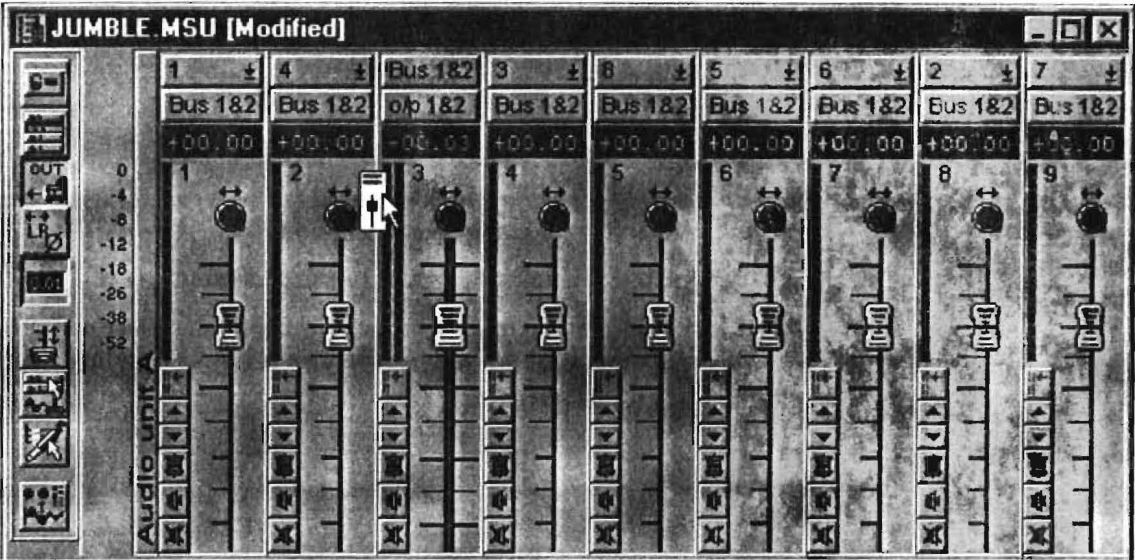
RE-ORGANISING THE MIXER

You may find the mixer can get cumbersome and take up too much screen space, or perhaps you would like to change the order of your faders so as move related strips closer together.

It is possible to change the layout of your mixer on the screen, in three different ways:

1. dragging and dropping faders to move them to another position.
2. hiding strips that are not in permanent use.
3. minimising faders to make them smaller

CHANGING THE ORDER OF THE MIXER STRIPS



To move a fader strip to a different position in the mixer, just click in any area of the strip, holding the mouse button down, and drop it in a new position.

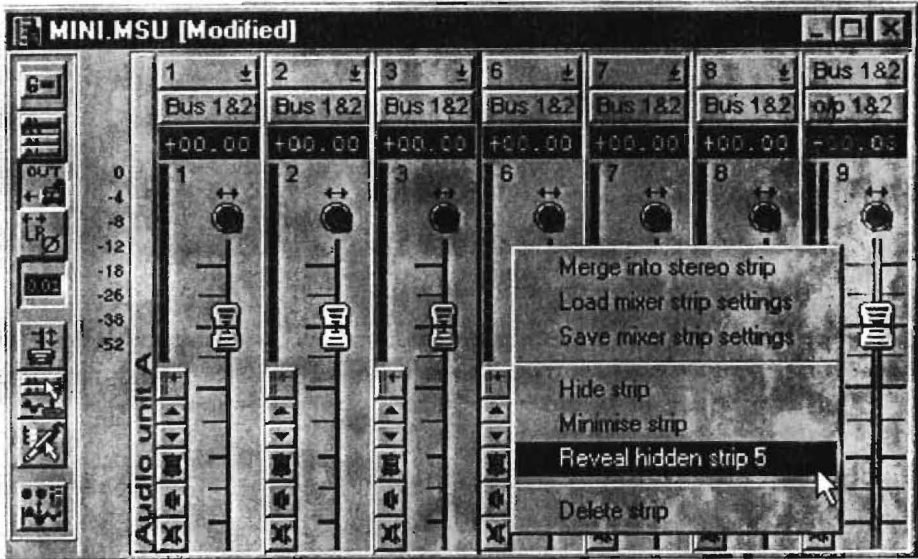
The easiest position for picking it up is the ppm meter, as most strips have an active area surrounding the fader itself. When you've 'caught' the strip, the cursor will change as in the picture, and if you drop it over the left side of another fader, it will dock to the left, or on the right side, it will dock right side of that strip.

If you drag it off the edge of the mixer, the cursor will change to look like a waste bucket :



and dropping it then will delete the strip. The strip movements, as with any other re-organisation of the mixer can be 'undone', with the Edit menu undo function.

HIDING & REVEALING STRIPS



Clicking with the right mouse button on any part of the strip will bring up strip menus, which have hiding options appropriate to that strip:

Hide strip

Reveal hidden Strip n

and **Minimise Strip** & **Maximise Strip** which are described below.

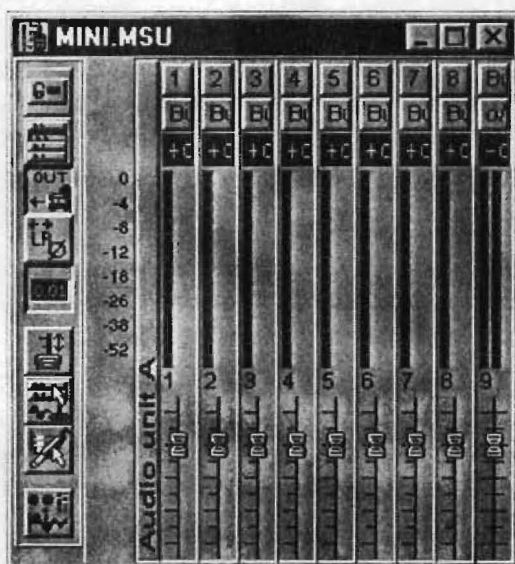
When a strip or several is/are hidden the line between strips is darker, and strips either side will have the **Reveal hidden strip** right mouse menu option.

You can reveal strips, one at a time by selecting this menu option.

You can **Reveal all hidden strips** by right mouse clicking on the mixer unit divider bar to the left of each mixer unit - this is the bar with **Audio unit A** in writing going vertically up the screen.

Double clicking on the mixer divider bar will hide and reveal the whole mixer unit.

MINIMISING AND MAXIMISING STRIPS



Right mouse clicking on a strip will offer either

Minimise strip as you can see in the picture above, or

Maximise strip to return the strip to its normal size.

A minimised strip shows as much information as possible in the limited space (you will notice there isn't room for pan-pots. You can minimise and maximise strips individually, or again by right mouse clicking on the mixer divider bar.

PLUG-INS

THE PROCESS WINDOW



This button on the Mixer configuration toolbar brings up a Process Window which is effectively an outboard rack of stereo processing units. Each of these is represented by a symbol at the top left which you drag into the empty rack space.



REVERB

For instance, drag into the rack for a stereo reverb unit

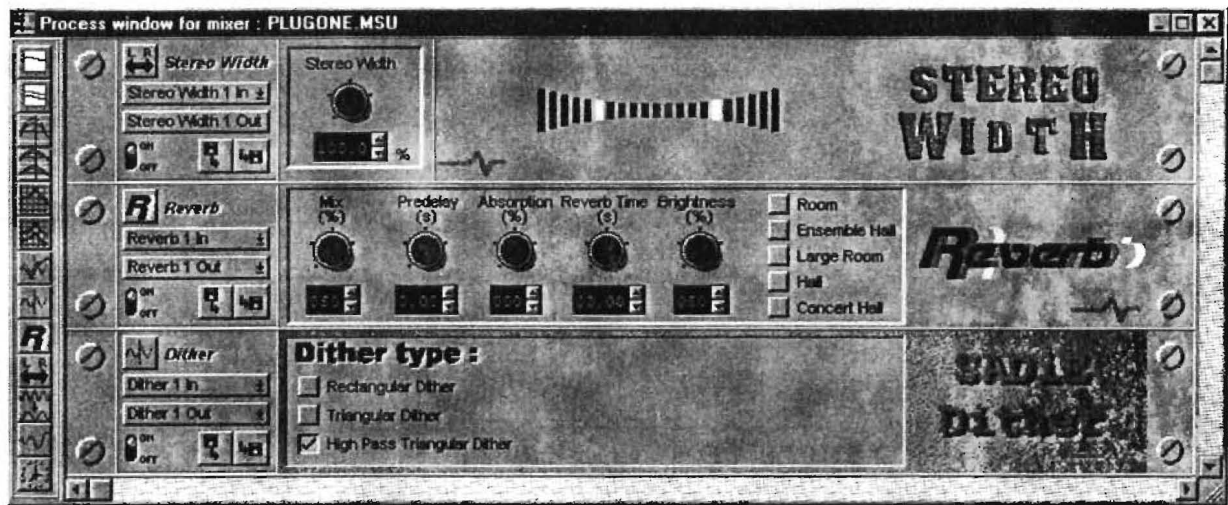
When a process unit is in the rack, stereo internal Busses named after it will be created. These are normally connected to its input and output. You can then patch signals to and from these busses (as described in the Routing section above) to route them through the process.

Each unit also has input and output selection buttons, normally connected to the busses named after the process. However, you can use the buttons to connect signals from SADiE's physical inputs, outputs and other busses directly to and from the process without going through the Mixer. If you do this, of course, you must remember that the Mixer busses named after the process are no longer connected to it!

To remove a process unit from the rack, right-click in a blank, grey area of the unit.

A number of processes are available. Some are provided free of charge, but other third-party plug-ins can be purchased. Contact your dealer for availability and pricing.

PLUG-INS



STEREO WIDTH



STEREO
WIDTH

has a single width control

REVERB



REVERB

has buttons for room size plus controllable Predelay, Absorption, Reverb time, Brightness and Mix (of input signal and 'wet' processed signal)

DITHER



offers three different types of dither.

To enable any of these, drag the appropriate icon onto the '19 inch rack' and patch it into the mixer using the busses.

There are of course a number of ways to connect up these effects. For instance with the reverb you may want to set up AUX SENDs on the mixer strips, routed to bus ReverbIn, and then drag a new stereo strip to route the ReverbOut bus back to the main bus. In this case you would probably need the reverb MIX control set to 100%. Whereas it's perhaps more appropriate to apply Dither 'in-line' between the main bus and the output. The choice is yours!

Note that these three plug-ins are stereo processes. The settings of each of these can be saved and re-called and a later date, using the 'disc' icons.

DEMONSTRATION PLUG-INS

Some plug-ins, which would normally be cost options, are available for limited-period use with the standard software release. This allows you to try them out if you are considering purchasing them.

When you first drag these plug-ins into the Process Window, you will get a message, warning you that it is a demo version. You have 30 minutes use of that particular plug-in. This 30 minutes counts down all the time the plug-in is in the process window - there is a read-out of how much time is remaining on the left-side "rack ear". If you remove the plug-in immediately, the count-down stops and you can use your remaining time later.

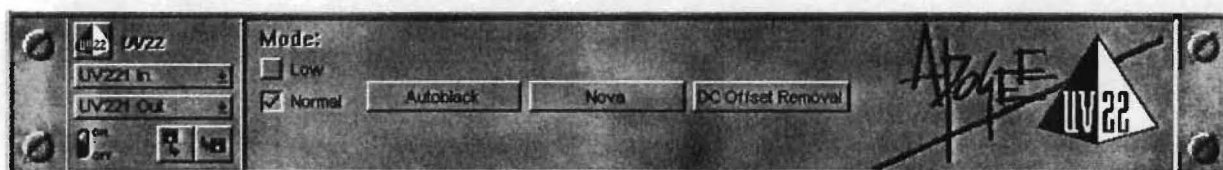
Demo versions are currently available for :

- Mastering Limiter
- Graphical EQ
- HiDither 96
- De-esser

If you decide to purchase a plug-in, contact your dealer for details of how to fully enable them.



APOGEE UV22 SUPER CD ENCODING



UV22 is a process designed by Apogee for increasing the audio performance of a digital signal, particularly when reducing bit resolution to 16-bit, although the effects are audible on original 16-bit recordings.

UV22 adds an inaudible, high frequency 'bias' to the digital stream, placing an algorithmically-generated 'clump' of energy around 22KHz. UV22 silently captures resolution up to and beyond 20 bits on a standard 16-bit CD or DAT.

UV22 patches into the mixer in the usual way. It is recommended that this is the last process in the chain.

MODE: The mode selection determines how much dither is applied to the audio. Low is 2 bits and Normal is 3 bits. Which bits are dithered is determined by SADiE's output resolution - the bottom 2 or 3 bits are affected.

AUTOBLACK: With Autoblack enabled on 16-bit resolution, when the input drops below -84dBFS the UV22 will turn off and output silence after about 1.5 seconds. It will then come on again as soon as the level comes back up above -84dBFS. This is resolution dependant; -84db is the threshold for 16bit. At other resolutions, autoblack switches in when the signal drops to below 2 bits.

NOVA: This feature prevents the output going above 0dB to prevent any 'clip' or 'peak' indicators being triggered.

DC OFFSET REMOVAL: This removes any DC offset in the signal. It will only affect signals below 1Hz.

Apogee UV22 is a third-party plug-in - contact your dealer for details of how to obtain it.



MASTERING LIMITER



The Mastering Limiter plug-in allows you to add gain to a signal before it is limited to a set level. You can define the limiting in -dBFS to avoid overloads. The Limiter enables the audio material to achieve 'loudness' while avoiding digital clipping. This is achieved by analysing the waveform on either side of a peak and reducing the gain to avoid distortion.

As with other normal plug-ins, this module patches into the mixing desk via the internal busses. There is an 'LED' array which displays the amount of gain reduction.

There are two icons for the Mastering Limiter in the process window - one creates a mono process, the other is stereo.

- GAIN** adjust this to add pre-gain to the signal to 'push' it into the limiter.
- LIMIT** sets the maximum peak level.
- RELEASE** sets the release time for the gain reduction.
- IMPACT** sets the rate of change of gain reduction. This is a little like the more familiar attack function but on a microscopic scale. A sound with a fast attack - say, a piano - would require a high impact setting, as the transient nature of the sound would need the gain reduction to react very quickly, whereas a smoother sound would benefit from a lower, more damped setting.
- HYSTERESIS** increasing the value of this reduces the sensitivity of the process to avoid the limiter being triggered by high transient, low level, gain changes. Note that the range of this control is reduced as you increase the gain.

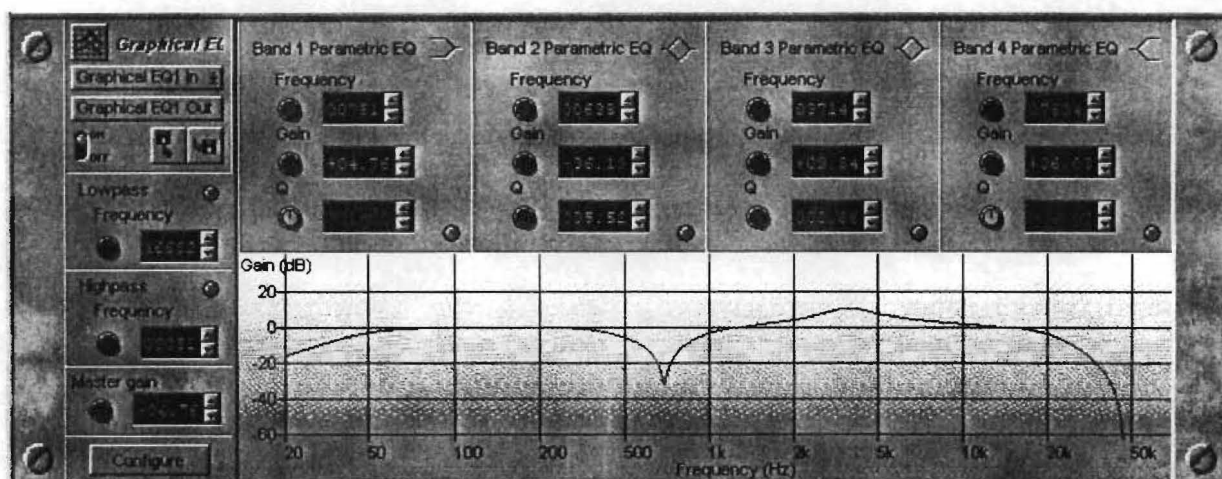
Note that because this process performs some analysis on the audio waveform, there is a delay of 50ms - the process must receive some audio before it can start calculating.

The Mastering Limiter is an optional plug-in - contact your dealer for details of how to obtain it.



Graphical EQ

GRAPHICAL EQ



The Graphical EQ is an all-in-one unit comprising 4 individual parametric EQ modules, low pass and high pass filters, master gain, along with a graphical display of the EQ curve.

This routes into the mixer in the usual way, using the internal busses.

The four EQs and high/low pass operate in the same way as a normal SADiE EQ process.

The green 'LED' bypasses the associated EQ section, without affecting the graphical representation.

The CONFIGURE button allows you to choose the function of the 4 EQs - between high or low shelf or bandpass, and how many are enabled.

There are 4 presets for changing the scaling of the graph where greater precision is required.

The CONFIGURE page also contains a preset for de-emphasis. You can save and reload settings for the Graphical EQ using the usual Plug-in save and load buttons.

The Graphical EQ is an optional plug-in - contact your dealer for details of how to obtain it.

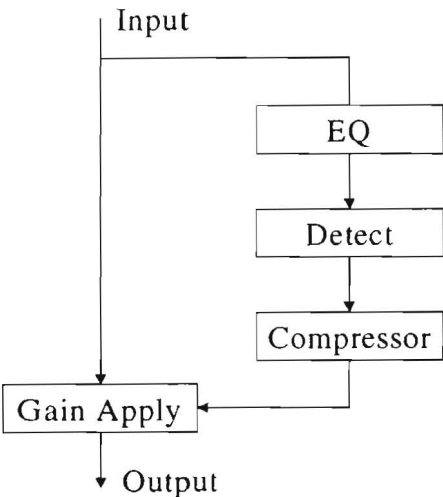


DE-ESSER

The aim is to reduce a band of frequencies above a threshold level in a signal. The two methods used are 'ducking' and 'phase reverse'. We will look at each method in turn.



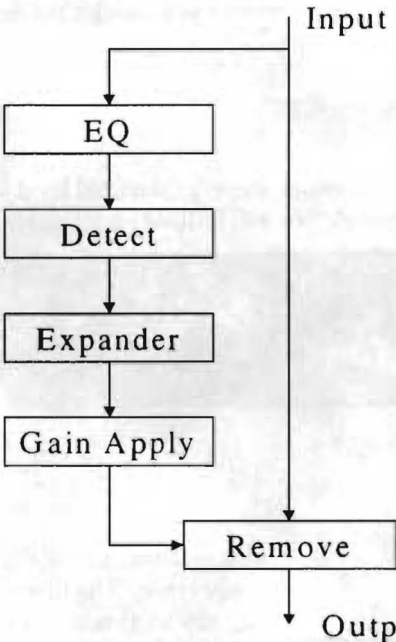
Ducking



This method is basically split into a filter and a compressor. The filter is used to highlight the band of frequencies that are to be reduced. The filtered signal is then fed into the compressor. When the compressor detects that its input signal has crossed over its threshold it increases the compression ratio. The compression is applied to the input signal to the system, so the whole signal band is reduced in level and not just the band described by the filter.

Phase reverse

This method consists of a ducking method, the filter is frequencies that are to be the expander. If the expander reached its threshold, it the filtered signal. Therefore, should only contain the band This is then phase reversed effectively removing only the some compensation for the gain before phase reversing.



filter and an expander. As with the used to highlight the band of reduced. The filtered signal is fed into does not detect that the signal has applies a very high expansion ratio to the signal at the output of the expander of frequencies described by the filter. and added to the original signal, thus band of frequencies selected. Note that of the filter is also applied to the signal

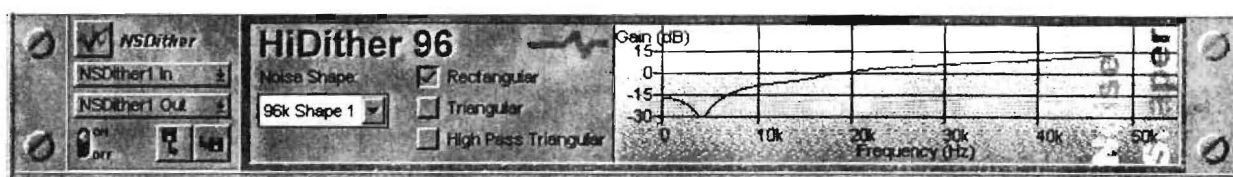
- Algorithm** – changes between the ducking and the phase reverse methods for reducing the signal.
- Filter** – Selects the type of filter to use, either bandpass or shelving filters are available.
- Compare** – When this button is pressed the user can hear the signal that is being removed.
- Filter controls:**
- Frequency** – Selects the break frequency for the shelving filter or the centre frequency for the bandpass filter.
- Width** – Selects the ‘Q’ for the filter.
- Gain** – Selects the gain of the filter.
- Dynamics controls:**
- Phase reverse:**
- Threshold** – Sets the threshold level for the expander. When the signal is below this threshold it is expanded.
- Reduction** – Selects the percentage of the detected signal that is removed from the original.
- Ducking:**
- Threshold** – Sets the threshold level for the compressor. When the signal is above this threshold it is compressed.
- Ratio** – Sets the steepness of the compression that is applied. A value of 1 applies no compression, 20 applies heavy compression.
- Make-up** – Sets the compensation gain for the compressor.

An 's' is usually contained within a band between approximately 3kHz to 8kHz. The filter is used to isolate this band from the rest of the signal. It should be noted that the gain of the filter will affect its slope. Therefore, using a high gain will not necessarily provide the best removal. The threshold for the dynamics section should be set to catch the worst offending sses in the signal, but not so that pumping can be heard. If too much reduction is applied the resulting signal will sound lispy and unnatural.

The De-esser is a optional plug-in - contact your dealer for details of how to obtain it.



HiDITHER 96



A brief discussion of noise shaping

When a signal is quantised some of the detail within the signal is discarded and as a result an error is introduced. This error can be heard as noise and is correlated to the input of the quantiser. The noise signal can be very noticeable to a listener if the original signal is simple or of a low level. It is therefore desirable to try and reduce this correlation and subsequently produce a random noise signal. The use of dither does just that. It linearises the non-linear transform characteristic of a quantiser and reduces the harmonic distortion for low level signals. To summarise, the use of dither has two effects on the input signal to a quantiser; firstly it reduces the correlation between the noise and the input signal, and secondly it increases the total noise in the system. In essence, dither is a low level additive signal that causes the quantised signal to jump randomly between quantisation levels, which when averaged by the ear forms a smooth transition between the levels.

As the noise level has been raised by the addition of a dither signal, it is desirable to try and shape the noise to reduce the overall audible effect. Noise shaping filters are used to match the curve of the noise signal to that of the frequency response of the human ear. This reduces the noise signal where the ear is most sensitive, (between 1kHz and 8kHz) and increases the noise where the ear is less sensitive, (above about 14kHz). An average response is taken for the human ear and so the effect of noise shaping will be slightly different for each listener. When using a high sample rate, for example 96kHz, it is possible to keep the noise floor lower for most of the human hearing range and move most of the noise signal to frequencies that are completely inaudible.

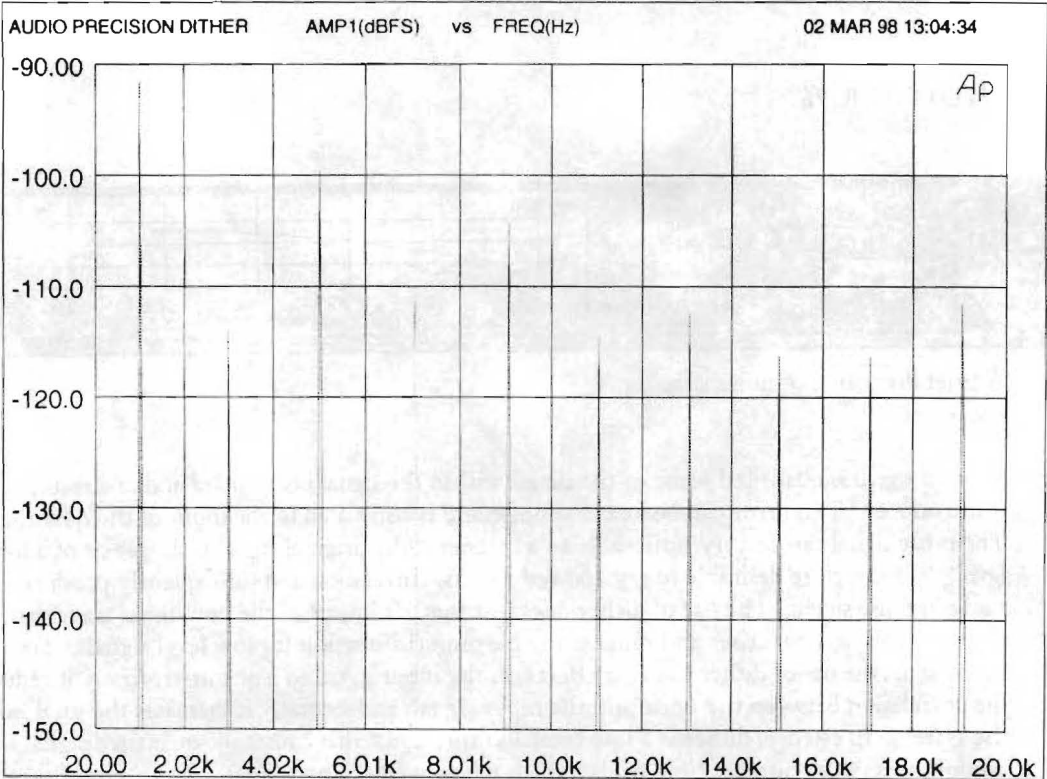
SADiE's HiDither 96 noise-shaping dither plug-in offers 5 different noise shape types, two of which are optimised for 96KHz audio material. The other three are designed for 48KHz & 44.1KHz audio. Additionally Shape 1 is designed for use with emphasis.

On the pages that follow are the plots for a -90db sine wave at 1KHz passed through the different HiDither algorithms. The graphs for 48K will be slightly different as HiDither uses slightly different filters - you can see the graph change in SADiE when you change sample rate.

Note: shape 1 is designed to be used in conjunction with emphasis on the audio signal. This shape BOOSTS the dither noise, in such a way that when de-emphasis is applied (for instance by the CD player) both the signal AND the dither signal are de-coded. Therefore it is inadvisable to use this shape unless you are using pre-emphasised audio.

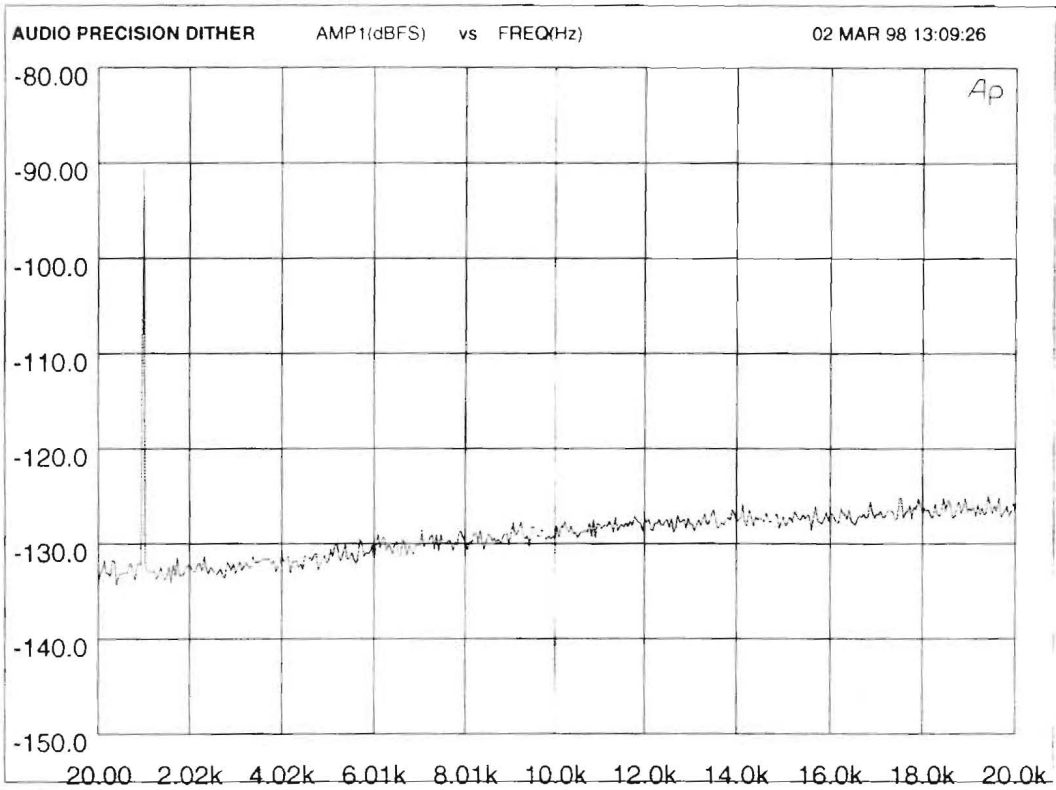
HiDither 96 is an optional plug-in - contact your dealer for details of how to obtain it.

HiDither 96



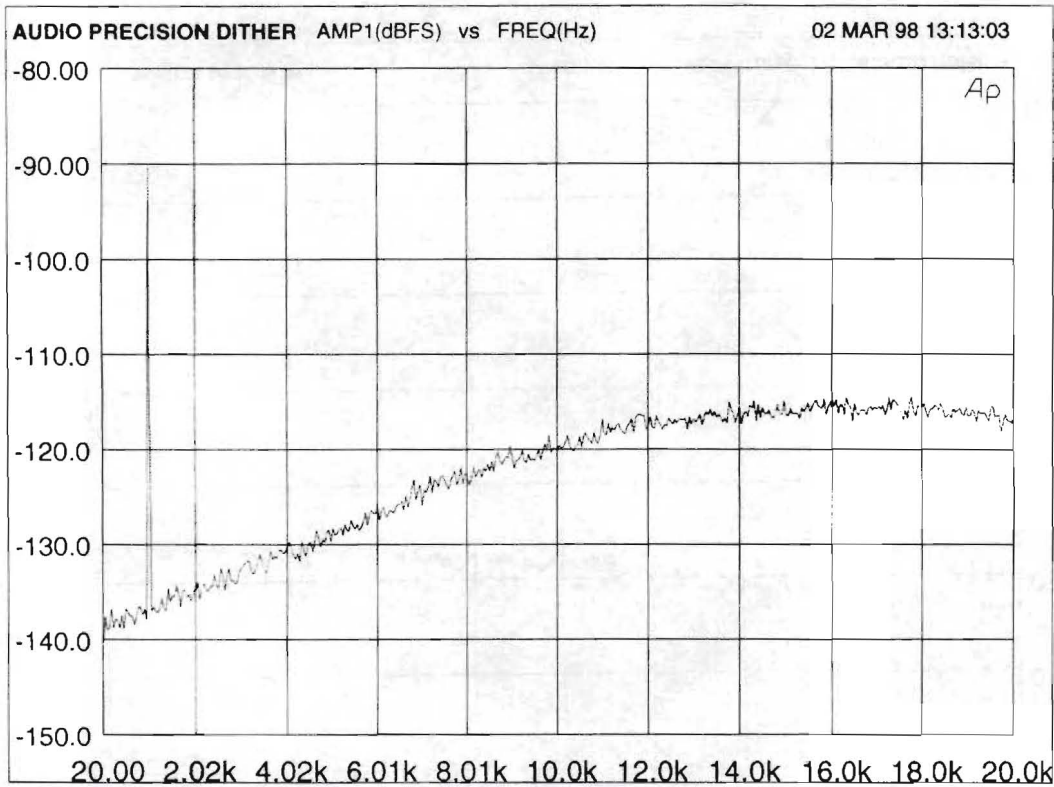
A-90dB sine wave at 1kHz with no dither

HiDither 96



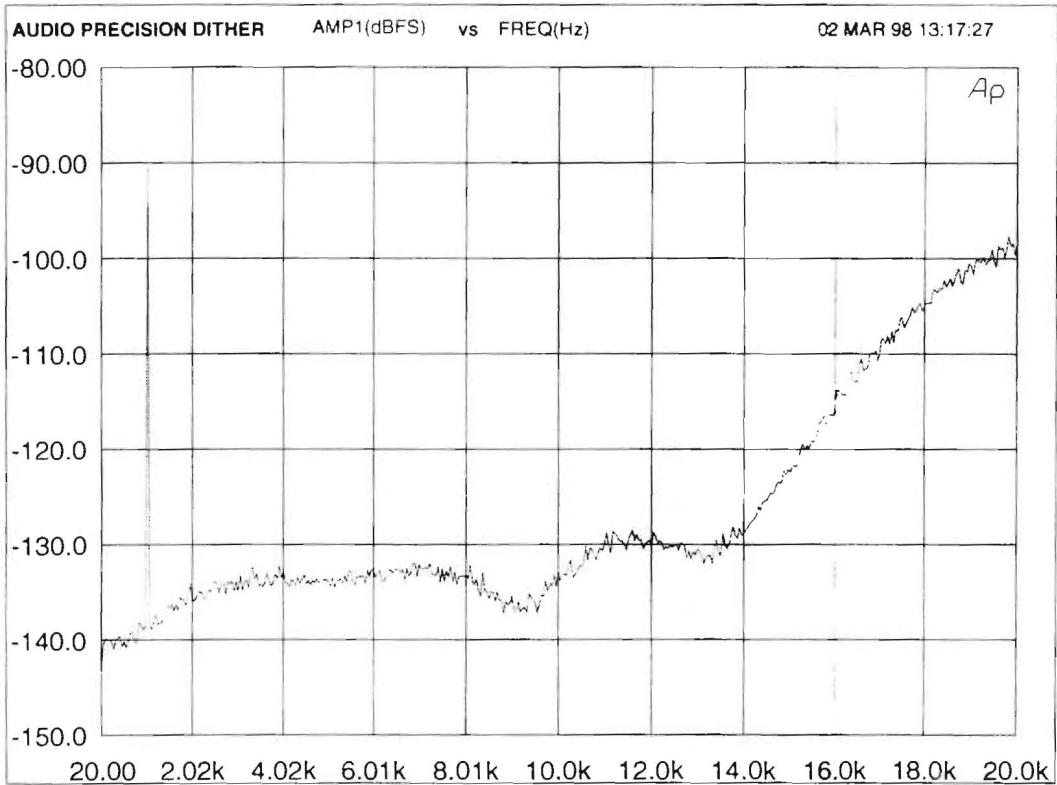
A-90dB sine wave at 1kHz with high pass triangular dither

HiDither 96



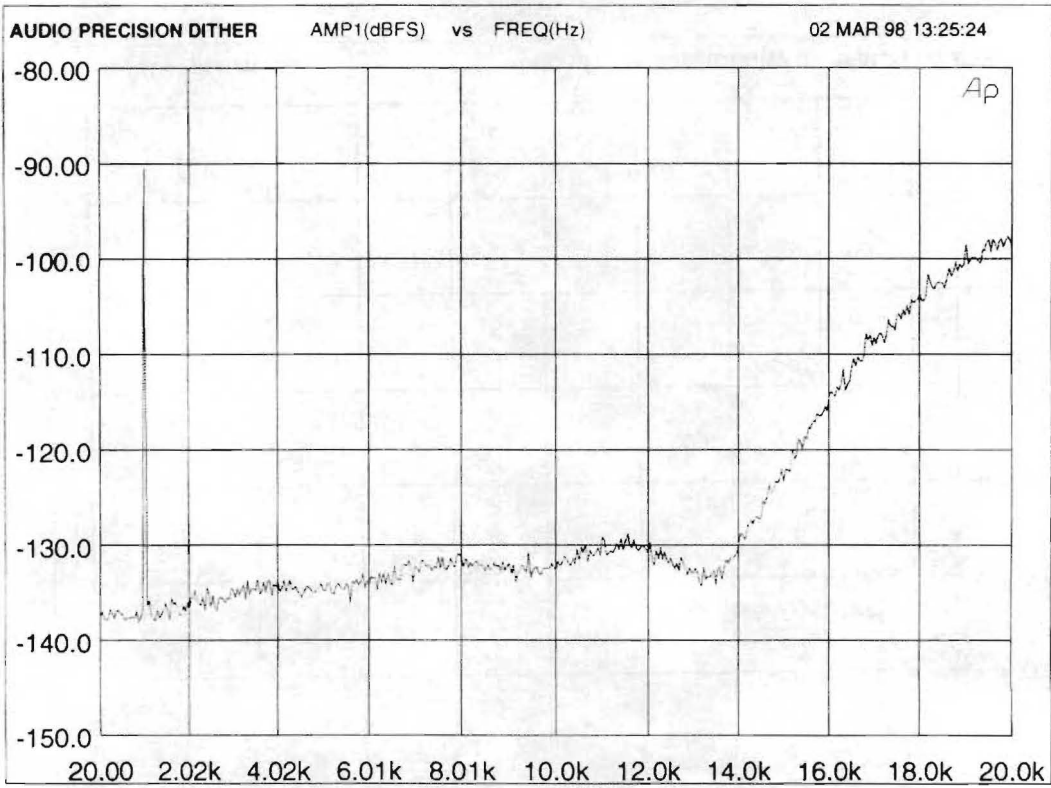
This is a plot of a -90dB sine wave at 1kHz with high pass triangular dither using noise shape 1 at 44.1kHz. See note above - this noise shape is designed for use with pre-emphasised audio.

HiDither 96



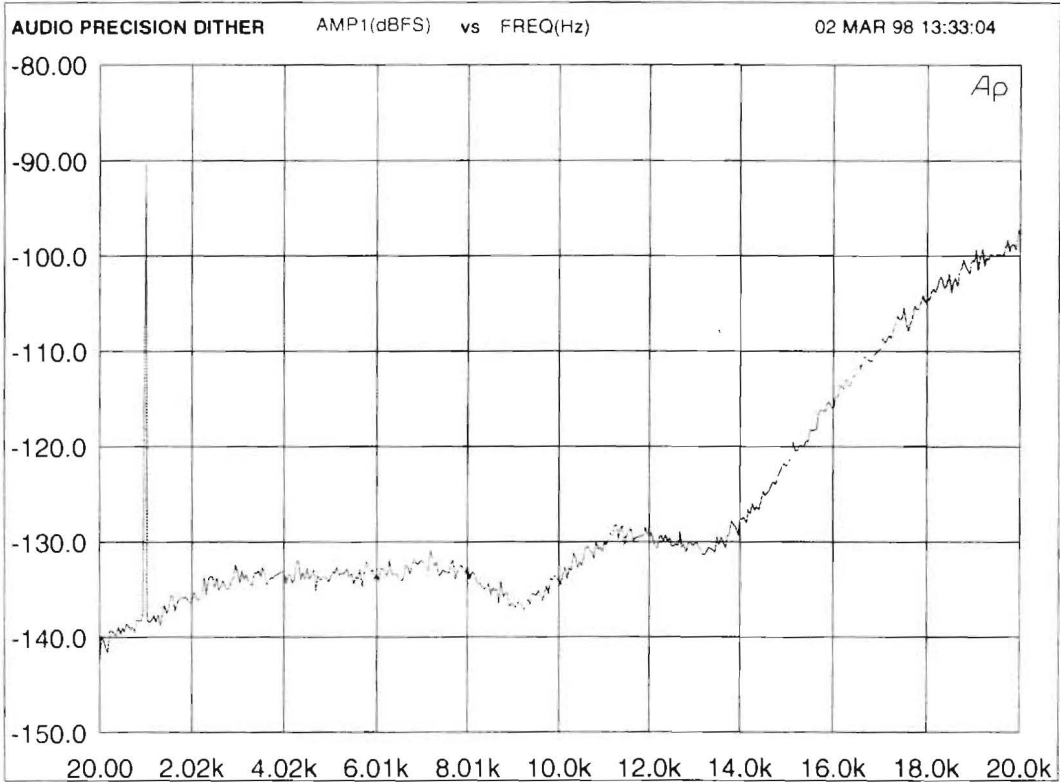
This is a plot of a -90dB sine wave at 1kHz with high pass triangular dither using noise shape 2 at 44.1kHz.

HiDither 96



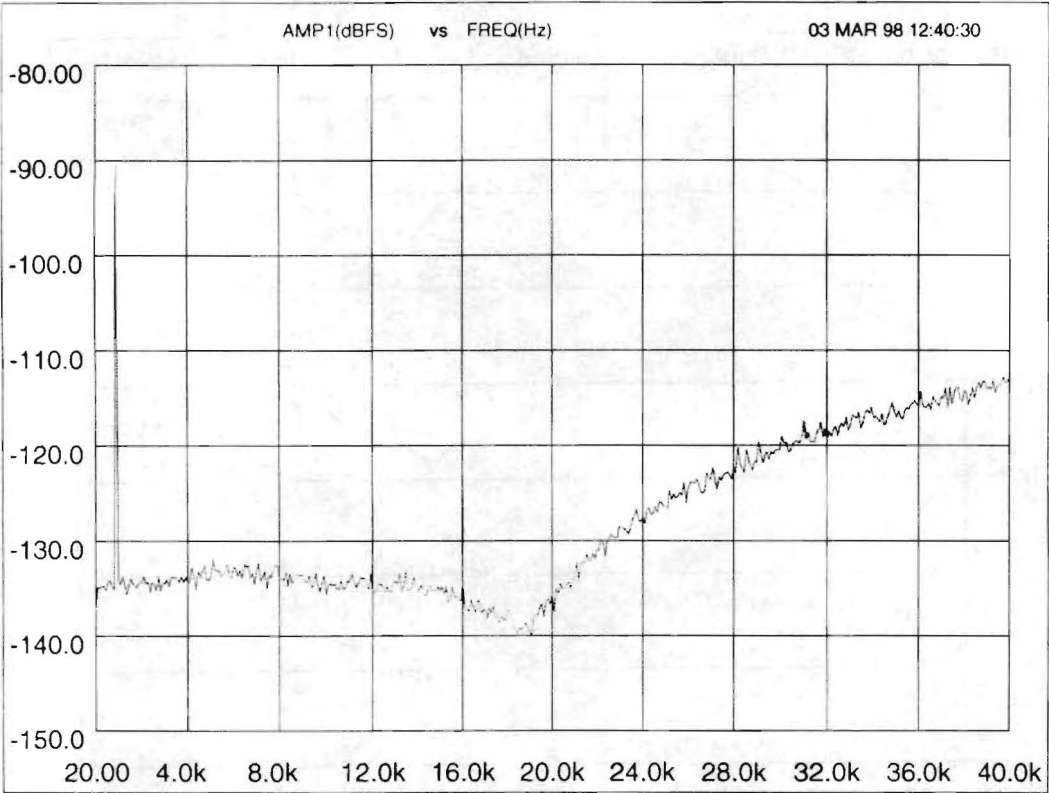
This is a plot of a -90dB sine wave at 1kHz with high pass triangular dither using noise shape 3 at 44.1kHz.

HiDither 96



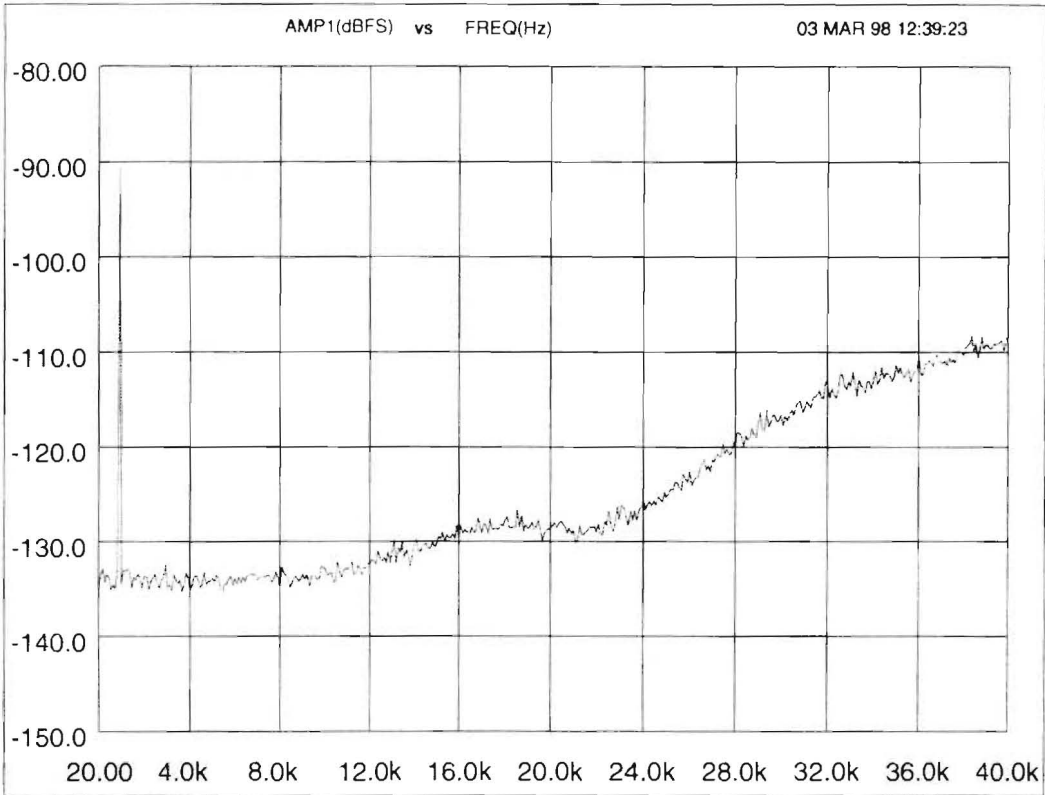
This is a plot of a -90dB sine wave at 1kHz with high pass triangular dither using noise shape 4 at 44.1kHz.

HiDither 96



This is a plot of a -90dB sine wave at 1kHz with high pass triangular dither using noise shape 1 (for high sample rates) at 96kHz.

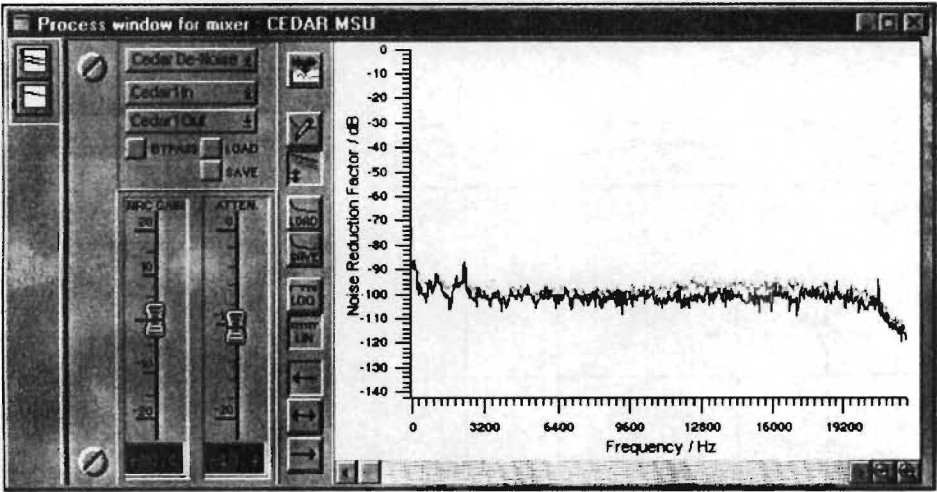
HiDither 96



This is a plot of a -90dB sine wave at 1kHz with high pass triangular dither using noise shape 2 (for high sample rates) at 96kHz.



CEDAR DE-NOISE



Designed by CEDAR, this is a broadband noise reduction system which works by removing from the audio signal a “fingerprint” sample that is displayed as a frequency plot called the Noise Reduction Curve (NRC).

In order to use De-Noise effectively, you need to find a representative bit of noise-only signal. This needs to be ½ to 1 second for best results. If necessary, copy the noise sample and repeat it in the Playlist, butting each Entry to the last to effectively “loop” it.



Play the material and press the SAMPLE NOISE button during the period of clear noise. Release it to stop sampling. The noise spectrum that has been sampled will be displayed as the NRC.

NOTE: No advantage is gained from a sample longer than a second, unless you deliberately want to average a varying noise, such as the “swishing” effect from an old disc. The danger of averaging, however, is that the resulting NRC will not be correct for the noise at any point in the noise cycle. Experimentation will pay off.
Avoid sampling over a hard start or end to EDL Entries as the transition to or from no signal may cause a transient.

You can now replay the material and adjust the Attenuation fader to the desired amount of noise reduction.

The NRC Gain fader is normally set to its mid-point of zero. At this setting the system will attenuate (by the set amount) the level of noise that was sampled. Increasing or decreasing the NRC Gain alters the sensitivity of the system to the noise sample. This can be used to fine-tune the result, or to compensate for higher or lower noise levels than the sample. Note that if the nature of the noise changes, the NRC will no longer be appropriate.



The bypass button allows you to compare signals before and after processing.

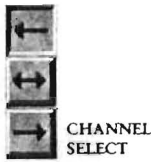


The graph displaying the NRC curve for the whole audible spectrum can be magnified and scrolled with the zoom buttons and scrollbar.



You can switch between a linear and logarithmic frequency scale for the NRC. Using a logarithmic scale shows more detail at the low frequency end and will therefore be useful when examining the curve to remove rumble or hum.

The NRC can also be manipulated and re-drawn by hand:-



First select either the left, right or both channels for manipulation (applies only when using a stereo unit). The selected channel's NRC will be drawn in a bolder line on the graph.

The curve is made up of a lot of nodes, or points, about every 50Hz. These will be shown by a dot when the mouse pointer is over them, like the data line for fader automation. You can:-

1. Click and drag each node to manipulate the NRC.
2. Draw (drag out) a box around part of the curve and then again click and drag to raise or lower that section. This may be useful, say, if you have sampled some noise, but only want the system to remove the low-frequency component of it.



When you raise or lower a section of the NRC, this button determines whether that section is modified in ratio to the gain or attenuation you are applying (button up), or whether it maintains its shape when moved ("Fixed" - button down).



3. Press this button and re-draw by hand part or all of the curve. When you release the button, the previous curve for that section will be replaced.



The NRC can be saved and re-loaded with these buttons. Thus you can set De-Noise to remove a previously encountered noise sample.

Cedar De-Noise is a third-party plug-in - contact your dealer for details of how to obtain it.



CEDAR DE-CLICK

De-Click is another process designed by CEDAR, based around techniques used in their own products, that analyses a signal over a period of several milliseconds, and replaces clicks with an interpolation based on the underlying signal.

In SADiE, De-Click can be operated by two distinct methods - **Auto De-Click** that automatically detects and processes clicks in large sections of audio, and **Manual De-Click** that allows you to highlight specific regions up to 2000 samples in length, that are either not detected or fully restored by the Automatic process.

Note that although De-Click is called a 'Plug-in', operation is quite different from standard plug-ins and you do not route the process into the mixer in the usual way. Cedar De-Click is a third party plug-in - contact your dealer for details of how to obtain it.

Auto De-Click

Auto De-Click uses **Offline Processing** - a function that is similar to Bounce - i.e. audio is re-recorded but instead of using the mixer and inline or plug-in processing, it uses a user-selectable process during the re-recording.

So the procedure is similar to bounce:

- Select the audio that you want to process - the 'Source' for the bounce.
- Tell SADiE what you want to do with the finished result of the bounce - i.e. select the 'Destination' for the bounce.
- Press START and SADiE performs the action, the result is as you specified in 'Destination'.

Example

Let's assume you have a recording in the playlist recorded from a scratched record.

- 1 Select the audio that needs to be sent to the De-Click process. You can do this by any of the usual methods allowed by bounce : i.e.

Complete EDL - the whole EDL will be processed - make sure there's no clips hiding several hours down the playlist otherwise the bounce will take hours !

Selected Clip(s) - you select EDL entries in red to be processed.

Selected Streams - enable the streams containing the audio, disable all the others.

Between L&R Locators - use Region Editing (see Chapter 5 - Editing; Region Editing for more details) to define the region of the clip(s) to be processed.

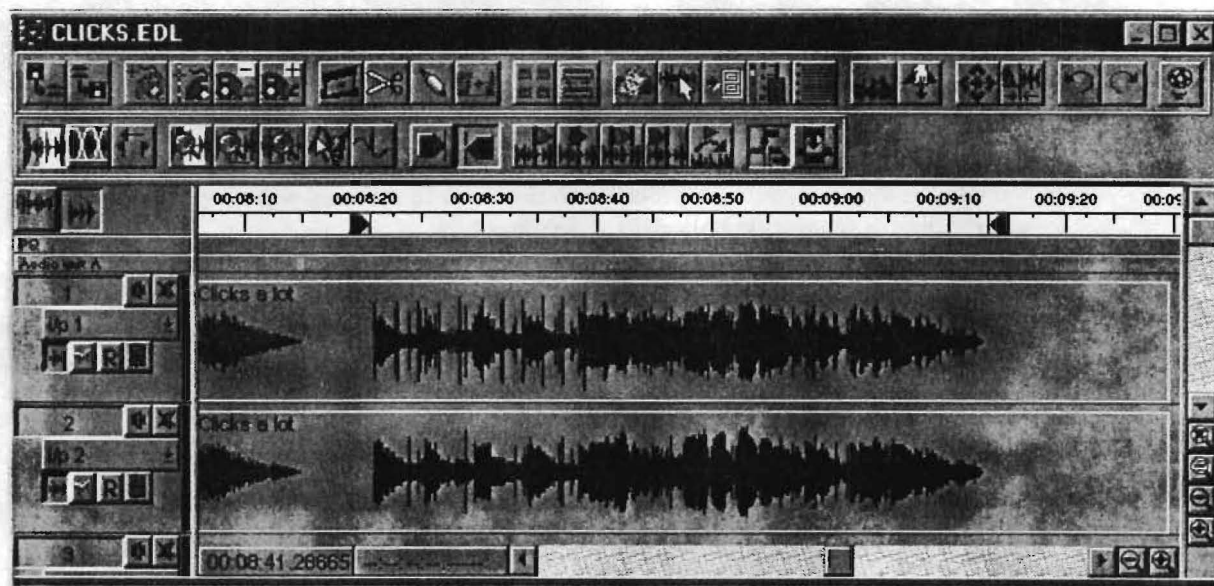
For the sake of this example, and because we'll need Region Editing to use Manual De-Click, I'll describe the last method, although you may find the other methods more appropriate. In practise you're likely to be doing the restoration before any editing has taken place and so *Selected Clips* will be fine - just click on the clip you're going to de-click. The region edit method gives you the advantage of being able to quickly top and tail the material before processing and hence you don't waste time processing audio that you're going to throw away immediately.

- 2 Turn on Region Editing.



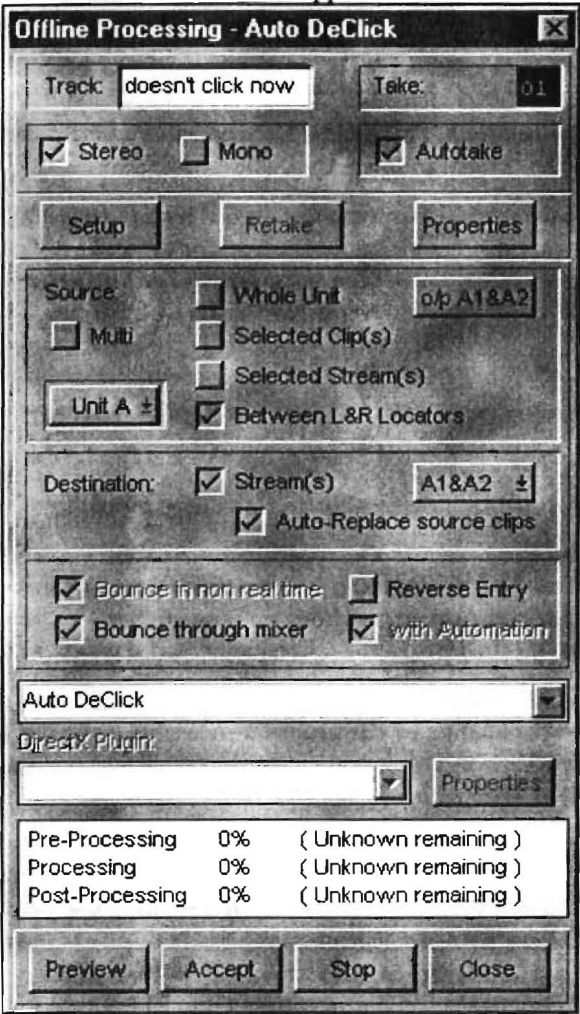
If this toolbar does not appear on the screen (on the Playlist window or floating), then you need to go to the VIEW menu, select TOOLBARS, then PLAYLIST, then REGION EDITING, to display this. Then press the left-most button as shown above.

- 3 Now, when your mouse is hovering over the playlist, the cursor is shown as a pencil. Click where you want the region to start, and drag the mouse leftwards, and let go of the mouse when you reach the end, the region will be defined in red. You can now fine tune the beginning and end to suit, by moving the mouse cursor over the beginning or end of the region and dragging with the left mouse button pressed.





- 4 When you're happy that you've selected the right sections of audio, go to the VIEW menu again, this time select OFFLINE PROCESSING. (If Offline Processing is grey then De-Click is not correctly installed.). Alternatively press the Offline Processing button on the playlist toolbar. This window will appear:



- 5 From the top, check that the settings here are correct:

Track	Track name for the new recording - autotake on if you wish.
Stereo/ Mono	To suit
Source	For this example select 'Between L&R Locators'
Source Output	Select the output(s) that the clips are currently playing back through. In this example I'm assuming that the clips are all on stream 1&2 (or just 1 if it's mono). If the source clips are part of a multi-track EDL, and if you're using Region Editing to define the source, you should enable only the streams that the source material is on, and disable all others.

Destination

'Stream' will be ticked. Here you can select where the de-clicked result will end up. In this example, we'll tick 'Auto-replace..' and leave stream 1&2 selected so that the new clip replaces the old one. However you may choose to untick 'Auto-replace...' and put the new clip onto stream 3&4 so that you have both original and processed clips side by side in the EDL.

Bounce in non-real-time

This will be handled automatically, and so you won't need to touch this.

Bounce through mixer

This time untick this box. If you tick this box, you will be able to change level, or even add additional processing (but not 'Non 1-1 processes' i.e. Timemod or Sample rate convert) as part of the De-click process. However of course any other processing could effect the performance of the De-Click process, and so it preferable to De-Click the raw material.

All this is the same as normal Bounce, but the sections below are different

Auto De-Click


Select this from the drop-down list of offline processes.

6. When you're happy that these settings are correct, press ACCEPT. Note that the Offline Processing window, like the Bounce window, is 'exclusive' and so you won't be able to click the mouse anywhere else in the program while this is open. If you do want to re-adjust the region, then press Close on the Offline Processing window first.
7. The Auto De-Click will proceed - the bottom section of Offline Processing reporting the progress. 'Pre-processing' is loading up the source, 'Processing' is the actual De-click working, and 'Post-Processing' is returning the new audio to the specified destination in the EDL. The speed of operation will be effected by the performance of your PC, and its own disk drive.
8. When 'Post-Processing' reaches 100%, the new recording will be put into the EDL, and you can play it back to listen to the splendid results of the De-Click process. You may have seen some warnings as the Auto De-Click progressed - a fairly common one is 'This track contains one or more clicks too long for Auto de-click to repair. Try using Manual De-click on them' If you get this message then take its advice - Manual De-click will handle much longer clicks and so may do the trick.

Manual De-Click

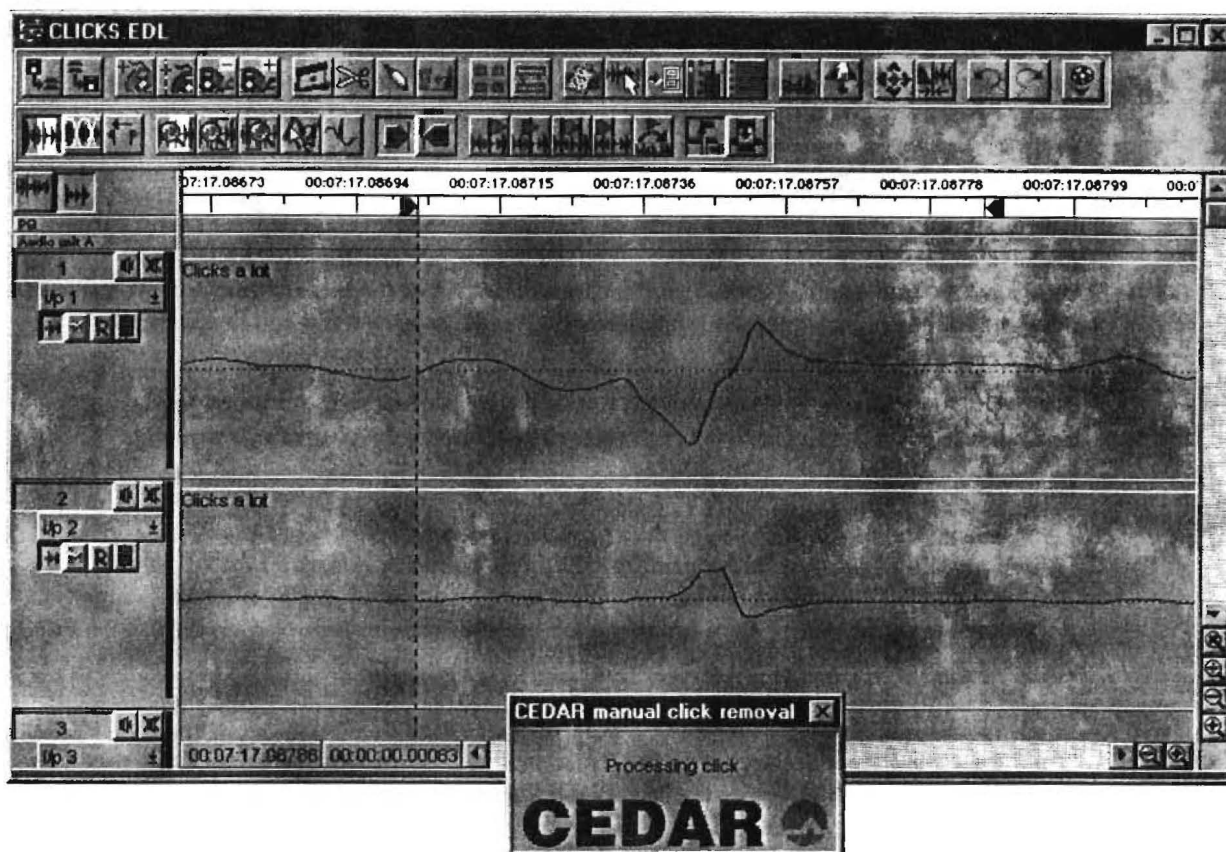
Manual De-click is initiated by a similar method to Auto-Declick, however it must be stressed that Manual De-click uses a completely different algorithm to process the clicks to the Auto process. With Manual De-click, the user defines the click, and so Manual De-click processes the whole region selected. Manual De-click can work with clicks up to 2000 samples long.

Example

- 1 Find the click by eye and ear while playing or scrubbing the EDL.
- 2 Enter Region Editing, and draw across the click with the  pencil tool as above, except this time the area we're highlighting will be much shorter. To zoom in quickly on the click, press the 'Zoom In on Region' button on the region editing toolbar. You may find that you'll have to draw across the click repeatedly and press this zoom button to zoom right in onto the click. Try using hotkeys for this - the (default) hotkey for this is SHIFT-Z. So SHIFT-Z, draw, SHIFT-Z, draw etc. helps you zoom in much quicker than repeatedly pressing the normal zoom buttons.



Zoom In
on Region



- 3 When you're satisfied that the click is highlighted (you can audibly check the region by using the preview buttons on the region editing toolbar), press the 'Cedar De-Click Selection' button, again on the region editing toolbar. A message as shown above will appear on the screen briefly, and then when it disappears, the region will be replaced by a new de-clicked region. When you zoom out a little (Hint: try SHIFT-X - this is 'Zoom to region start' and will zoom the playlist out to a preset zoom level which you can set for yourself in VIEW menu; Setup Window; Playlist; Playlist Display) you will see that a larger area has been replaced. Manual De-Click always replaces with a clip around 8000 samples long, although only the centre region will be de-clicked.

Note: If there are repeated instances of de-clicked areas very close together in your playlist, then you may find that your hardware may not be able to play them. An error message may be 'SADiE cannot play this EDL because there is not enough DSP memory available'. To resolve this you will have to re-bounce all the little clips together to create one longer section. We'd advise that you choose a *region* (L&R locators) as the source for this 'consolidation' bounce. The Manual de-click process gives its replacement clips *zero length* crossfades, and so if you wish to bounce *Selected Clips*, you would have to set your default crossfade to zero to avoid changing the crossfade. If you bounce a region, all this is taken care of.

It's important to recognise the difference between the Manual and Automatic De-Click processes - with Manual De-Click the user identifies the click, and thus if you include areas with no click in your region, they will be processed as if they are clicking. An artefact of this is a possible drop in level if you De-Click a long region where no click exists. So it's important with Manual De-Click to select only the click and no extra audio on either side.



OFFLINE DIRECTX PROCESSING

The **Offline Processing Window** (available by pressing the button on the Playlist toolbar, or by selecting it from the View menu) provides a way 'Bouncing' audio through a DirectX process running on the PC. You operate this in a similar way to the normal Bounce process - select some audio in the playlist, open the Offline Processing window, and after the process has been performed the new audio will be added to the playlist.

Before any DirectX options will be offered, you must have a run-time copy of DirectX drivers installed along with any plug-ins you wish to use. Once they are installed, SADiE will automatically find them and when you've chosen **DirectX** as the main offline process, you will be offered a list of available plug-ins in the **DirectX Plugin** drop-down menu inside the Offline Processing window.


Note that (as of SADiE v3.70.01) this is a non-real-time process and so it is not possible to audition the effect of the process in real-time while adjusting the plug-in's parameters.

Example of DirectX processing

1. Select the audio clips that you wish to process. You can choose to process: Whole EDL, Selected Clips, Selected Streams or Between L&R Locators, as with a normal bounce. With this example I'll use 'Between L&R locators' and use region editing to set these locators. So, enable region editing by pressing the left-most (or top-most) button on the Region Editing toolbar.

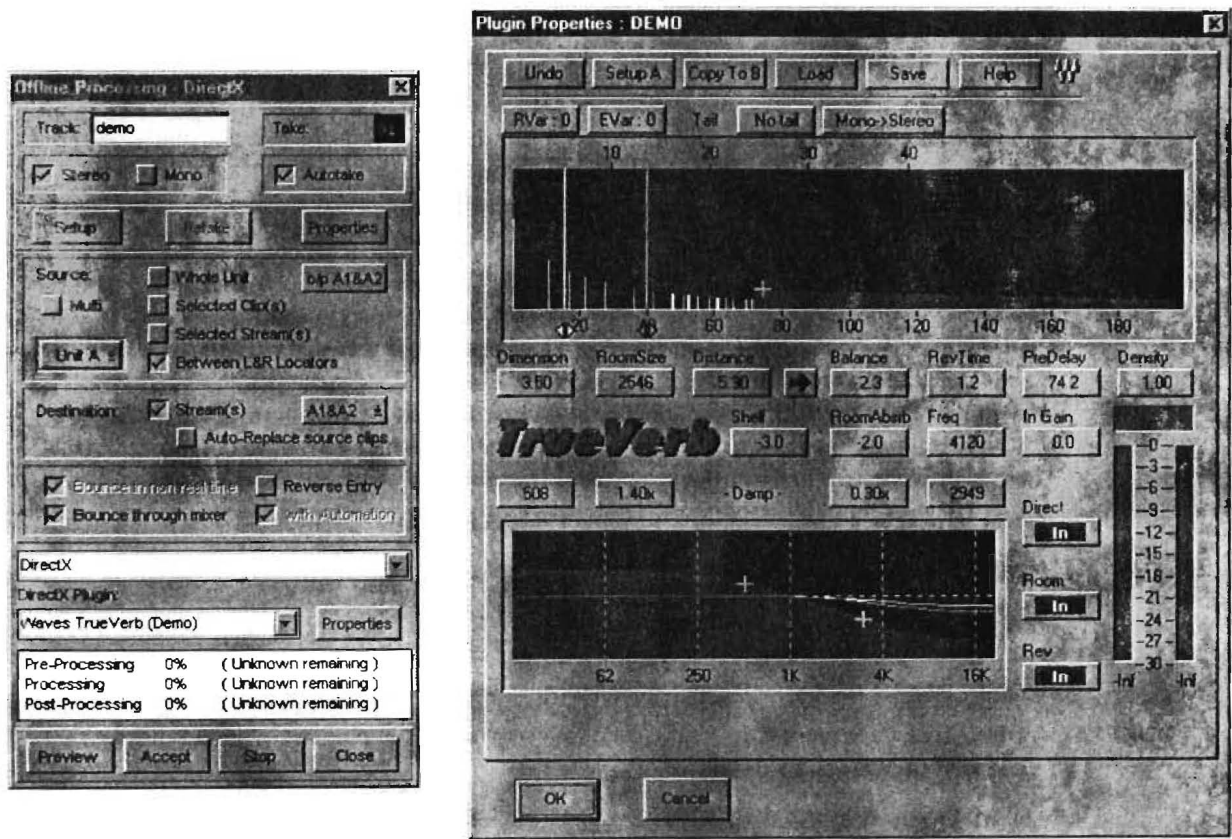


If this toolbar does not appear on the screen (on the Playlist window or floating), then you need to go to the **VIEW** menu, select **TOOLBARS**, then **PLAYLIST**, then **REGION EDITING**, to display this. **SHIFT-R** is the default hotkey for this (and you don't need to view the toolbar.)

2. Now, when your mouse is hovering over the playlist, the cursor is shown as a pencil.  Click where you want the region to start, and drag the mouse leftwards, and let go of the mouse when you reach the end; the region will be defined in red. You can now fine tune the beginning and end to suit, by moving the mouse cursor over the beginning or end of the region and dragging with the left mouse button pressed. (See *Region Editing in Chapter 5 for more details*).
If you are likely to want to try a few possible Plug-in settings first, then it's advisable to select just a short section of audio for your 'trial' processes. The longer the audio the longer time it will take to process, and so, unless you're sure you're going to get it right first time (or the plug-in has no adjustable parameters), it's best to do shorter trial runs before you choose to process anything larger.



3. When you're happy that you've selected the right sections of audio, press the **Offline Processing** button on the playlist toolbar. Alternatively go to the **VIEW** menu again, this time select **OFFLINE PROCESSING**. The left hand window in the picture below will appear:



4. Check that your source and destination settings are as you want them - the picture above is correct for this example.
5. Choose DirectX from the drop-down list, just above 'DirectX Plugins:' Then the DirectX Plug-ins selection box will be enabled and you can choose which one to use. Press the Properties button to view the window for the Plug-in - the picture above shows the panel for a demo copy of the 'Waves TrueVerb'.
6. Set up the plugin, or load a preset (some plug-ins will have this facility others not) then press OK to close the Properties box.
7. Press **Preview**. Pre-processing will start and count up to 100% as the audio is passed to the PC. Then Processing will start, again counting as it progresses - this is when the actual audio process is taking place. During the Post-processing stage, the processed audio is being passed back to SADiE, and when that's complete SADiE will play the result.
8. If you're happy with the result, then press **Accept**. The processed clip will be added to the playlist (or will auto-replace depending on your Offline destination setting). **Preview** goes through all the motions of processing without actually putting the clip in the playlist, whereas **Accept** runs the same procedure but DOES add the clip to the playlist. **Accept** and **Preview** will not do unnecessary work if no change has been made to the source selection or Plug-in parameters. Likewise, a Preview followed by a parameter change then another Preview will not run the pre-process stage again if the source hasn't changed.

NON 1 - 1 PROCESSES

Non one-to-one plug-in processes (or Non 1-1 as we shall call them) are so-called because the result of the process is a different length (in terms of time) from the input.

As a general rule these are not routed in the same way as normal plug-ins - you will notice that they have no bus buttons to allow this.

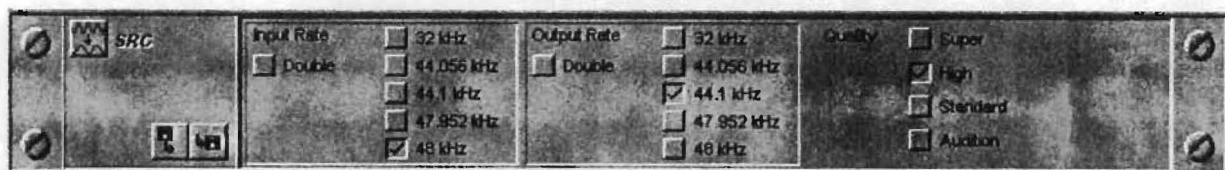
Instead, when you drag and drop a Non 1-1 process into the 'rack', the process will take effect across ALL outputs. So all playback, real-time or non-real-time, will pass through the process

These are mostly fairly DSP intensive processes, and so only one Non 1-1 plug-in can be used at a time.

There are different qualities available on some Non 1-1 processes. A lower quality process will use less DSP power, and hence you will be able to playback more audio in real time through the process. But for the highest quality result, it's usually necessary to bounce the result back to hard disc in non-real-time, using the Bounce Window. Because the Bounce Window always re-records an Output, any bounce with a Non 1-1 process plugged in will include the Non 1-1.



SAMPLE RATE CONVERTER



The Sample Rate Converter or SRC is a Non 1-1 process with presets to convert audio from one of SADiE's standard sample rates to any other.

The five normal sample rates have a button each, and the Double button enables the double sample rates for 88.2KHz and 96KHz rates.

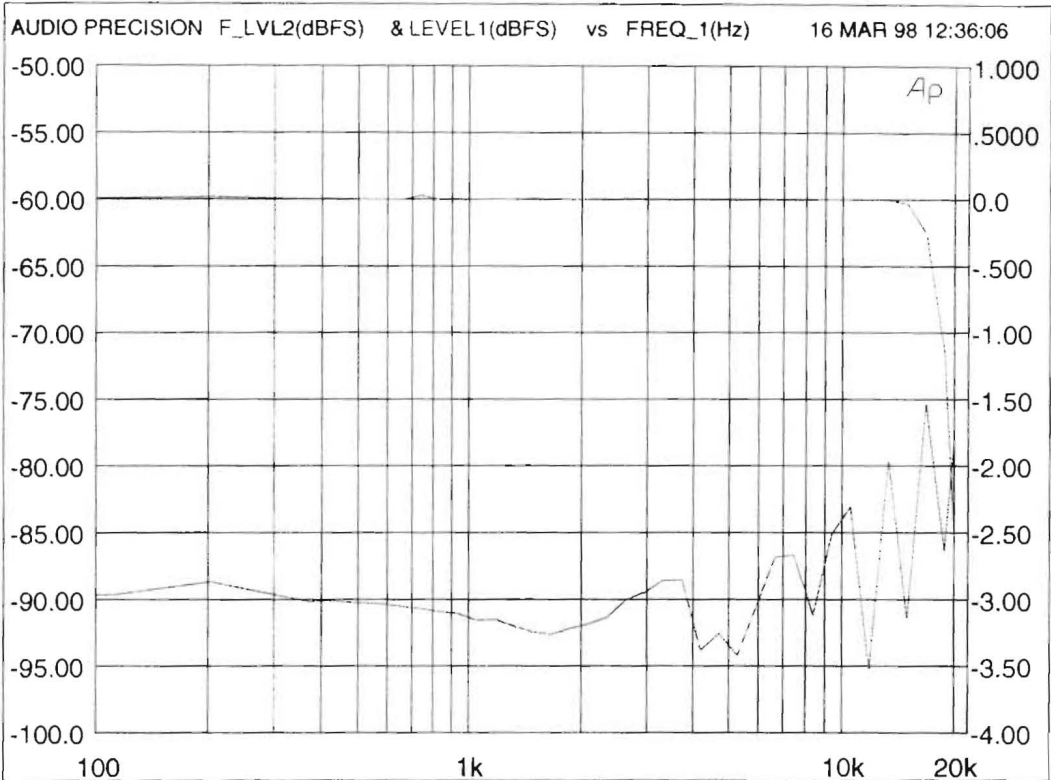
The Audition quality is the most likely to be playable in real-time. The High quality is often sufficient for most high-quality applications.

SAMPLE RATE CONVERSION TESTS

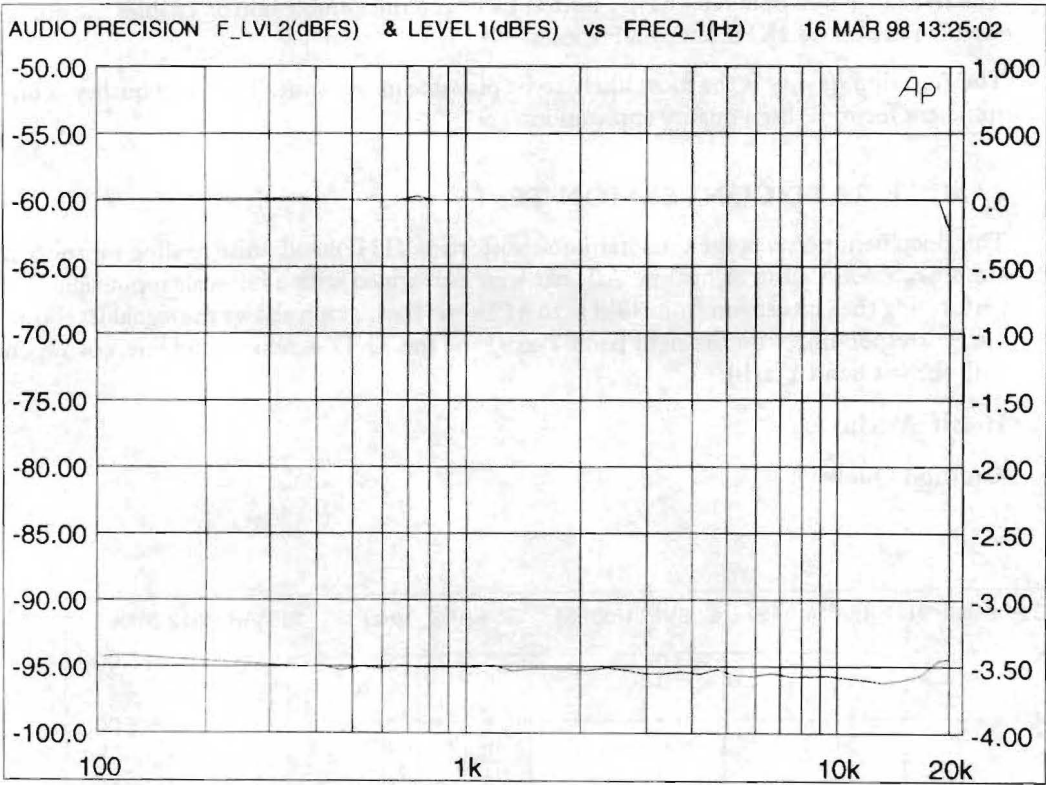
This document presents the total harmonic distortion (THD) and noise reading for the SADiE 3 sample rate conversion algorithm. All tests were performed with a full-scale input signal, performing the conversion from 48kHz to 44.1kHz. Each graph shows the signal level (the dotted line, corresponding with the right hand Y-axis) and the THD + noise (solid line, corresponding with the left hand Y-axis).

16-bit Audio

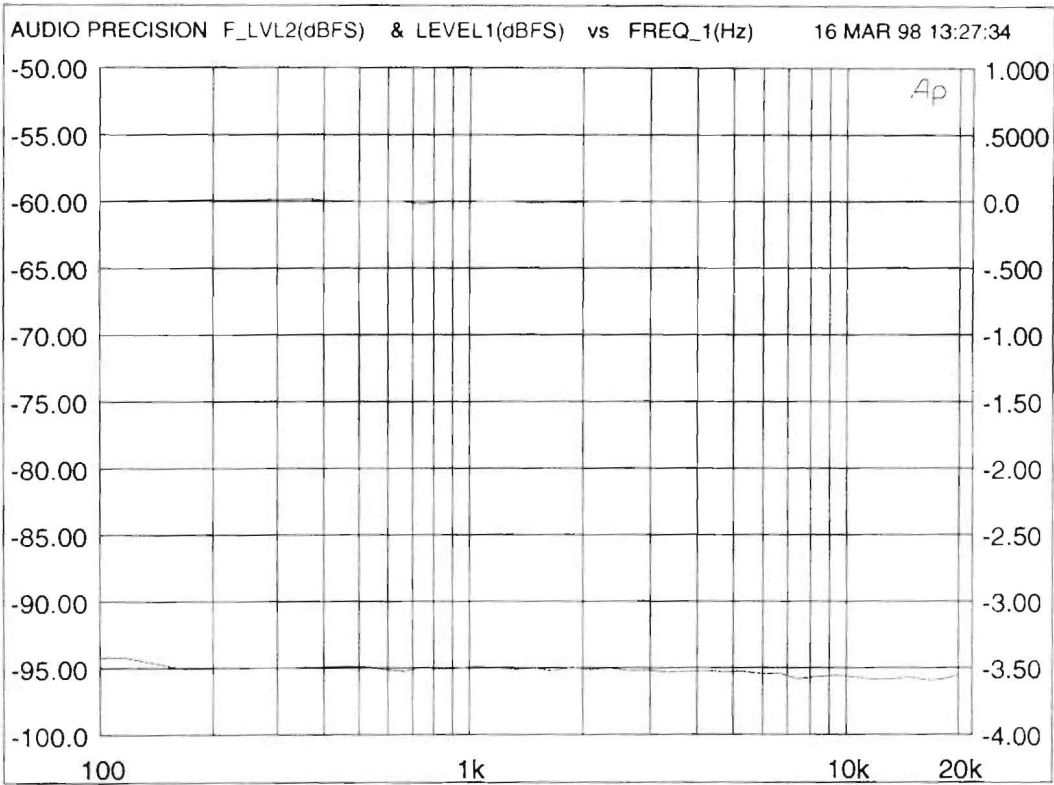
Audition Quality



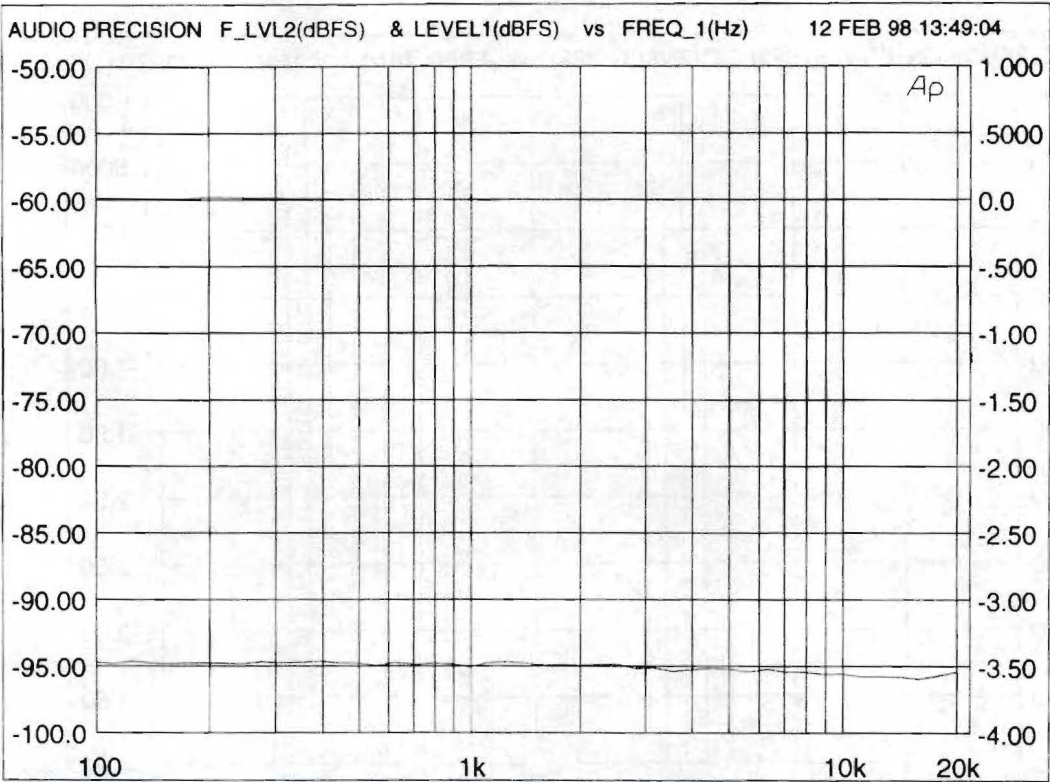
Standard Quality



High Quality



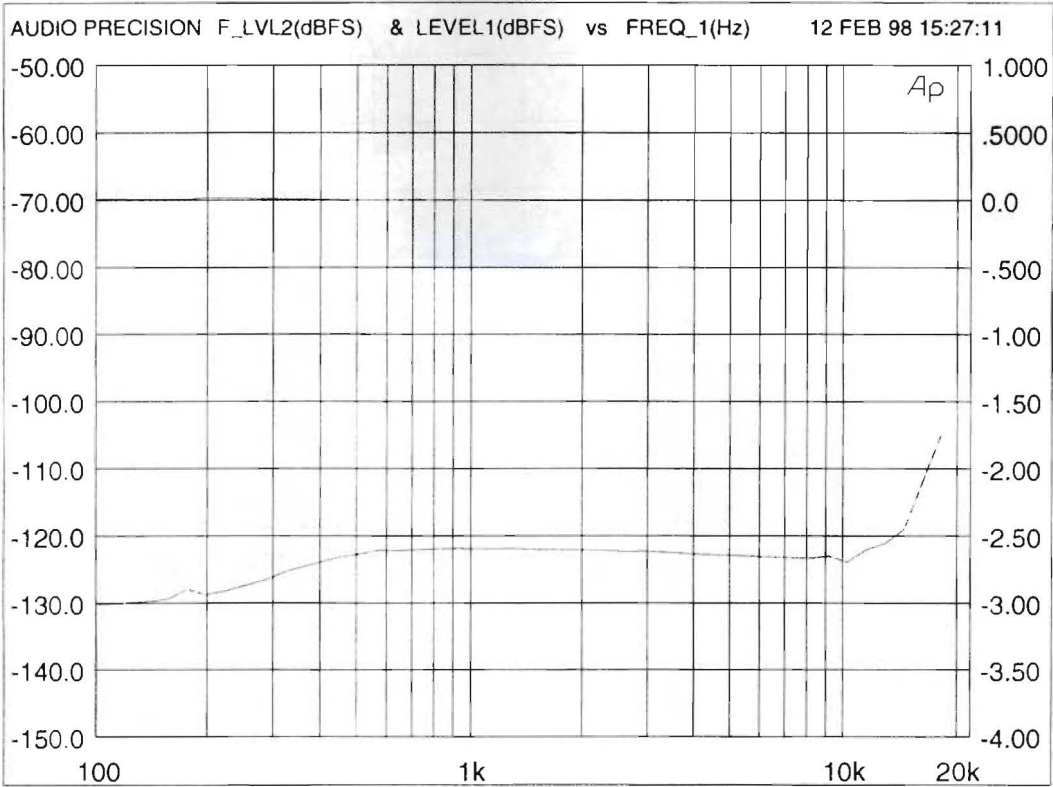
Super Quality



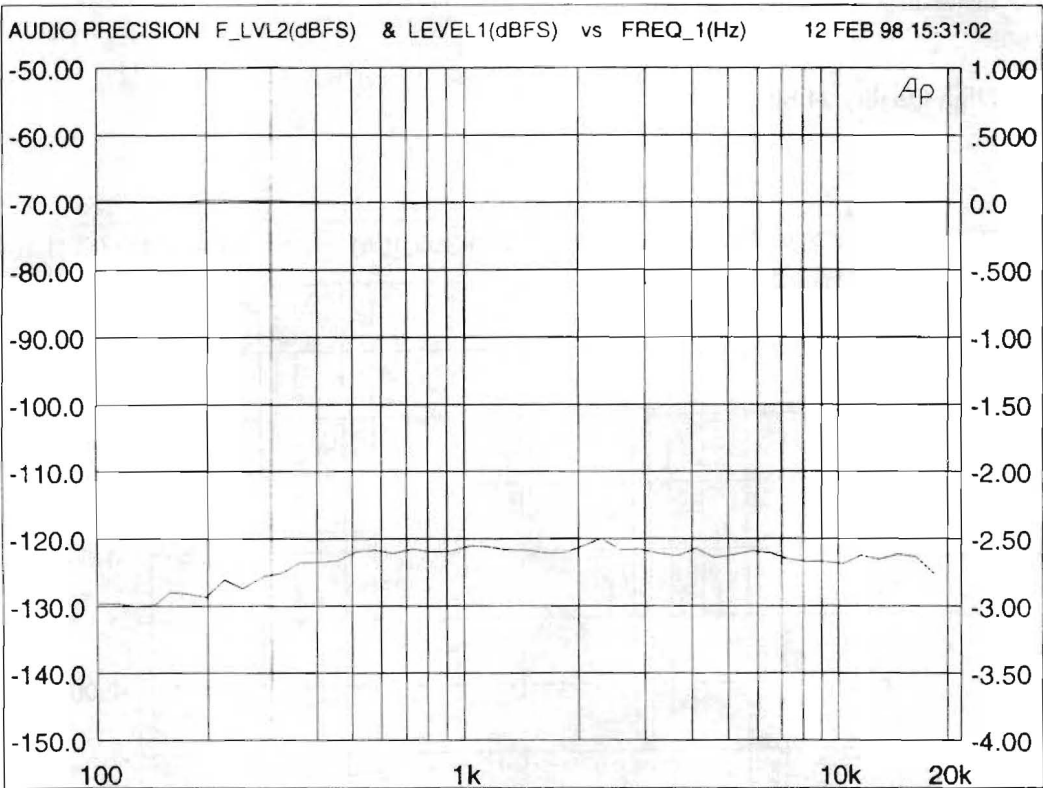
24 Bit Results

The following results show the performance of the high and super settings on 24-bit source material.

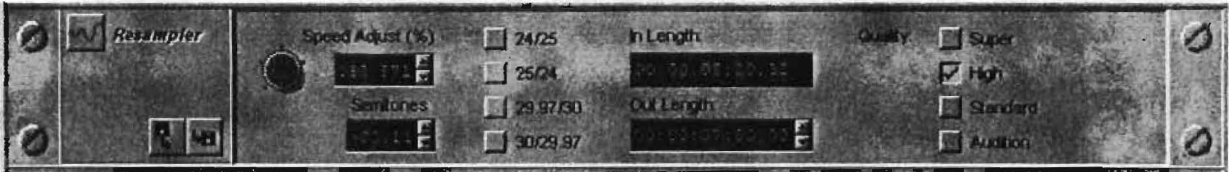
High Quality 24 bit



Super Quality 24 bit



RESAMPLER



The Resampler Non 1-1 process uses the same algorithms as the SRC above, but has a different interface for setting the rate change. The Resampler performs a digital varispeed, changing both length (in terms of time) and pitch.

All of the controls are linked and provide different methods of setting this change.

- SPEED ADJUST** allows you to type in the percentage change.
- SEMITONES** allows you to type in the pitch change you are trying to achieve.
- 4 PRESETS** automatically sets the resample for 24 to 25 frame conversion, 25-24 etc.

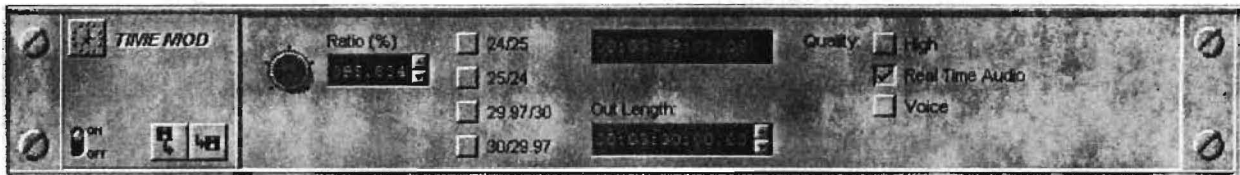
- IN & OUT LENGTH

the In length is the total length of the Selected entries (in red) in the current EDL. You can type the new total length for these entries in the Out Length time field.
- QUALITY

as with the SRC, the Audition quality is the most likely to work in real-time, but you may want to use a higher quality setting for more critical work.



TIMEMOD



- The Timemod Non 1-1 process performs a change to the length (in terms of time) without changing pitch.
- As with the Resampler, the controls are linked and provide you with different ways of setting the length change.
- RATIO

allows you to type in the percentage length change.
- 4 PRESETS

automatically sets Timemod for 24 to 25 frame conversion, 25-24 etc.
- IN & OUT LENGTH

the In length is the total length of the Selected entries (in red) in the current EDL. You can type the new total length for these entries in the Out Length time field.
- QUALITY

The timemod quality settings refer to the frequency range that the signal analysis is carried out on. The only practical effect is on the low frequencies, i.e. low frequency signals are less affected when using higher quality settings. The 'voice' setting just analyses the signal within the limited bandwidth that speech signals occur.

PEAK METERING



Each strip of the mixer has a line of “LEDs” to display peak levels going through that strip.

The Fader decimal display (the number in red in the drawing left) is a dual-purpose display. The information it shows depends on settings in the Setup page. You can identify what it's displaying by the colour of the number:

- Cyan is not displaying peaks, this is the fader level offset value.
- Green is the peak level detected through that fader. This is reset automatically only when you start play, or you can manually reset it by double clicking on the number (CTRL-double click resets ALL peak meters)
- Red is the peak level detected through an output fader, but this is greater than zero. Actually, it's impossible to produce an output greater than 0db, so this is the level SADiE has calculated it would have been. In fact this shows that there have been a number of sequential full scale samples on the output. This can be reset in the normal way.
- Yellow is the peak level detected through a stream or bus fader that is greater than zero. In this case samples aren't truncated - because of SADiE's floating point internal calculations approximately 1000db of headroom is allowed internally. This can be reset in the normal way.

In the Setup page you can choose which type of display - Fader level or Peak Hold - is being shown. Under the “Mixer” section, inside its sub-section “Mixer strip display”, you can choose between:

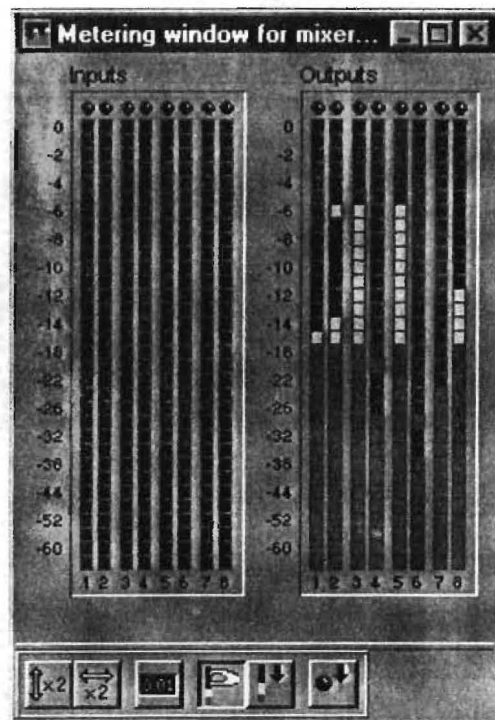
- Only show peak levels on output strips
- Show fader positions on all faders
- Show peak levels on all faders

NOTE: Peak displays on Output faders are post-fader; on other types of fader strip they are pre-fader.

Because output levels are much more critical than internal levels, the peak displays on Output faders are measured more frequently than those on other types of fader strip. This will explain any apparent discrepancy between for instance a stream strip peak and an output strip - it's the output peak that is correct.







Output peaks are measured every 4 samples, which is adequate for most applications, however in extremely critical situations such as mastering, these can be switched to being measured every single sample. See Mixer setup - “Mixer Output PPM type” - “standard” is 4 sample, “mastering” is 1 sample accurate.

METERING WINDOW

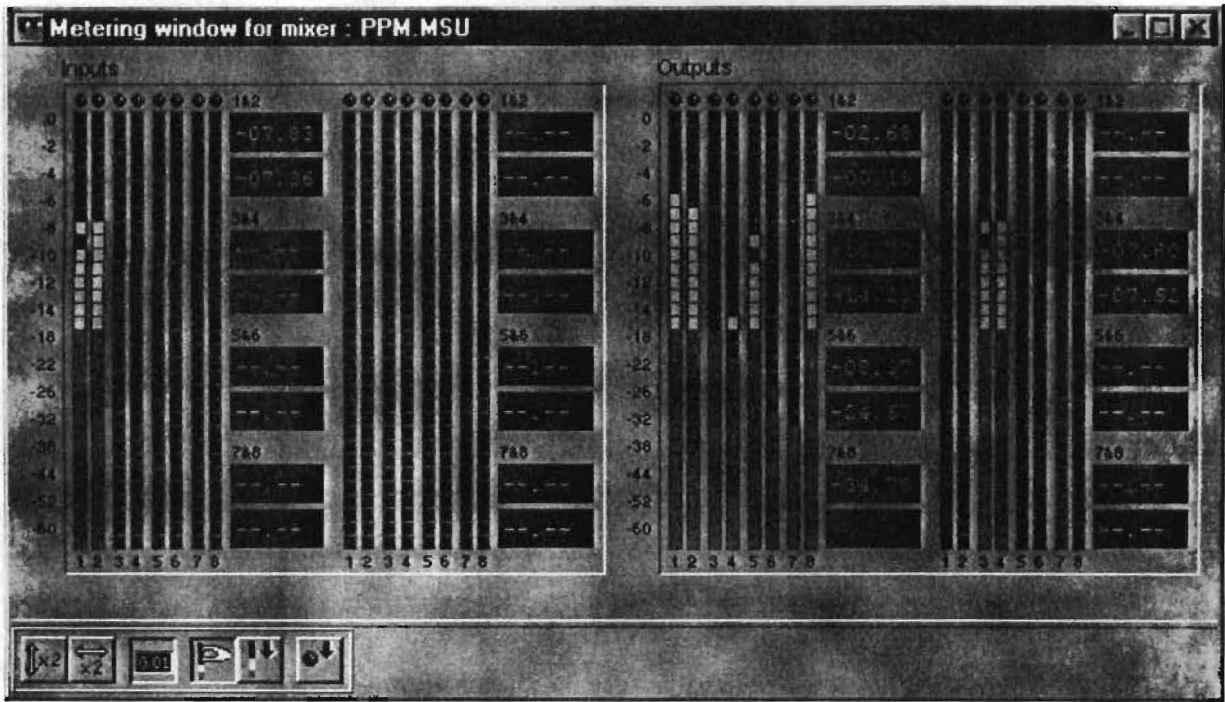


The Metering Window is viewed by pressing the **Show Metering Window** button on the Mixer Toolbar. This gives a separate window displaying a PPM 'LED' style meter for every physical input and output in the system. The PPM scales are set to be the same as displayed by the normal mixer meters - this can be changed in the Mixer page of the Setup Window.

The toolbar (which can be viewed or hidden in the usual way - right mouse click, or the Toolbar | Mixer option of the View menu) offers some options as follows:

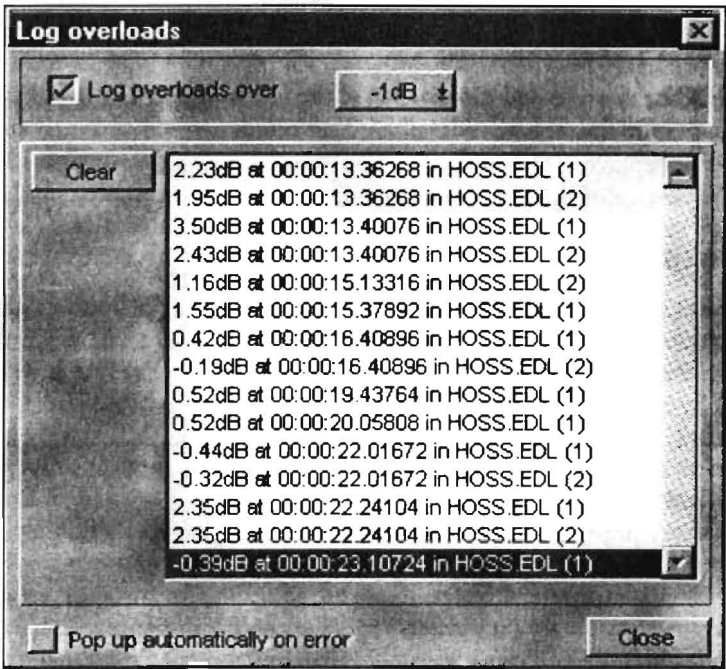
-  Enlarges the PPM displays vertically so that they appear double height.
-  Enlarges the PPM displays horizontally so that they appear double width.
-  Views or hides the numeric Peak Level displays.
-  Toggles the peak hold mode - when the button is pressed, the highest peaks are held until the Clear Peaks button is pressed.
-  Clear Peaks - all held peaks are cleared down - both on the PPM meters and the numeric Peak Level displays.
-  Clears the Clip LEDs at the top of each PPM strip. The Clip LEDs glow brighter red when an 'over' is detected, whether Peak Hold is enabled or not.

Note: There is a setup option (View; Setup window; Mixer; Peak Displays; Clear on Play) that allows you to choose to clear all meters on going into playback or to hold them every time you play audio. This applies to the normal mixer meters and the Metering Window.



For reasons of economy with screen space, the numeric Peak Level displays are displayed on the right side of each bank of inputs or outputs. The example above shows a Metering Window for a 16 channel 24.96 system. Notice that the meters are grouped in banks of eight to represent the the inputs and outputs of each of the system's Audio Units.

LOG OVERLOADS WINDOW



The Log Overloads window is called up from the VIEW menu, or set to “pop up” as an error is detected.

The Log Overloads Window can be set to capture Audio Overloads on all digital audio outputs, whilst a playlist is playing. The accuracy of this is determined by the “Mixer Output PPM type” setting as explained above.

To enable, tick Log Overloads, and set a threshold above which you want the window to record the Overs. A list will appear below, recording the peak level, the EDL time that level occurred, the name of the EDL in which it occurred and the output which was peaking. Double clicking on an item in the list will locate the EDL to the correct time, so that you can review the problem.

In order to produce a definitive, accurate list of peaks in an entire playlist, SADiE effectively has to ‘listen’ to the whole EDL, which involves playing the playlist, through the mixer along with processing, and analysing the output signal.

Errors can be logged as you play and edit the playlist, but to speed up the process and produce a definitive Overs log, you can do a final play-through of the EDL with **NON-REAL-TIME** checked in the Transport Toolbar (at the bottom of the Record pane)

AUTOMATION

OVERVIEW

SADiE can record the positions and movements of the following controls:- fader level, mute, pan, and Mixer strip processes (i.e. aux. send level, EQ, but not dynamics) and then automatically replay them. You can update the automation data by making new adjustments as the old control movements are being replayed. This applies whether you are using a mouse or the hardware controllers. The advantage of the hardware controllers, of course, is that you can make more than one adjustment at a time.



Each process section on the Mixer strip has a **DISABLE AUTOMATION** button that will stop movements of its controls from being recorded or replayed. Individual EDL Entries can have their recorded automation data disabled in the Clip Details window so that it will not be replayed (see Chapter 4, *Arranging an EDL*).

NOTE: Process sections start with their controls disabled, so you have to enable them to record adjustments. For EDL Entries the default is automation enabled. When process automation is recorded, you have to put the whole process section into write, thus if you have any previous automation, the whole section will overwrite even if you only touch one knob. For that reason if you are recording for instance, an sweeping EQ, it is best to write stationary parameters first. This isn't a problem with a hardware controller because you can adjust more than one control simultaneously.

Automation data is retained as part of the EDL, so that changes to mixes can be undone and redone using **UNDO** and **REDO**, and you can move between mixes by saving and loading different EDLs. The data is tied to the audio Entry that it affects and will move with it to different EDL times and even different Playlist Streams, so you can edit the Playlist after mixing.

When you scrub the Playlist, the automation data will still be followed - just watch those faders fly!



Automation is enabled for the whole Mixer from this button on the Mixer's configuration toolbar.



On the hardware controller the **AUTO** button will enable automation when the Mixer is the active window.

When enabled, the Mixer automation toolbar will be displayed.



This selects the modes that determine how automation data is recorded and replayed. On the hardware controller, they are selected with **SHIFT** + the buttons at the bottom left of the fader panel.

Whenever the position of a control is being recorded, it will be outlined in red - by a red box around knobs and a red stem behind faders. Hardware controller faders will have their red, "write" LED lit.

Whenever data from a control is being replayed, it will be outlined in green and hardware controller faders will have their green "replay" LEDs lit.

AUTOMATION MODES

The following automation modes are sensitive to a control being “touched”. With the mouse, this means clicking on it, hardware controller fader knobs are touch-sensitive.



OVERWRITE mode - applies to all controls. Any previously written data is replayed until you touch a control. Its position will then be recorded and will continue overwriting any previous data until you stop or change modes. The control will be outlined red; hardware faders show their red “write” LED.



DISCONNECT mode - applies to all controls. Any previously written data is replayed until you touch a control. It then affects monitoring only and the previously recorded data will not be changed. The control will be outlined grey, and the hardware controller fader LEDs will be off. After returning to another mode, each disconnected control will stay that way until it is touched.



The **AFFECT ALL** buttons causes the above modes to immediately affect all controls. This is the equivalent of touching all the controls in the Mixer. So, if you press **AFFECT ALL** and then switch, say, to **OVERWRITE** mode, all control positions will be overwritten from that point.



AUTO-RETURN mode - applies to fader and pan controls only. Any previously written data is replayed until you touch a control. It will then enter overwrite mode until it is released, when it will return to replaying the previous mix. While the hardware controller’s faders are being moved, the “write” LED will flash, and while they are returning, both LEDs will flash.



The time taken for the control to return can be adjusted with the adjacent knob and display. The knob brings up a pop-up fader which shows you a precise time in seconds; the display indicates the nearest whole second.



TRIM mode applies to faders only- indicated by a blue fader stem and both hardware fader LEDs lit. Entering this mode causes all faders to immediately move to a middle position. The previously recorded data will be replayed, but can be offset by the amount you move a fader. This is useful if you have a complicated mix where you got all the moves right, but the whole thing needs to be a bit quieter or louder. Note that you will not see the faders moving, but the automation data can be displayed on the Playlist Stream, as described below.

TIP:

You can change modes during playback, depending on what you want each adjustment to do. For example, after making an overwrite adjustment for several minutes, you might want to switch to auto-return, touch the fader and have it return to the previous mix. You can also select a mode and reposition a control before starting playback, so that the adjustment takes effect immediately.



Once data is recorded, when you next play the EDL, SADiE will automatically switch to **AUTO-RETURN** mode. You can inhibit this automatic switching by pressing the **KEEP** button., which keeps you in the selected mode each time you stop and start playback.



The **WRITE TO END** button writes the current position of all controls that are outlined red (hardware faders “write” LED) to the end of the EDL.



SNAPSHOT mode buttons allow you to record a constant mixer setting throughout an Entry or groups of Entries. See *Snapshot Automation* below for a detailed description.



NOTES: If you have used fader grouping buttons, movements of linked faders are recorded as if they are all being moved individually. So, if the link is later removed, the automation will still replay the original movements. Linking faders after their movements are recorded has no effect on the way they are replayed.

Automation data is tied to EDL Entries, so control movements where there is no Entry may be ignored.

RECORDING AND REPLAYING A SIMPLE MIX

1. Get a rough mix together before you enable automation. That way you can experiment with different settings without all your twiddling being recorded and annoying the hell out of you when it is replayed.
2. Once you have your initial fader and processing settings, you can enable automation and they will become your starting point for recording.

NOTE: If you now position the current-time cursor at the start of the EDL, press the AFFECT ALL button followed by the WRITE TO END button, these positions will be written as a complete mix. This means that if you stop your first mix before the end of the EDL, the controls will return to these base positions at that point.

3. Play your EDL and move any control you want recorded. You will initially be in OVERWRITE mode.
4. Replay that part of the EDL and the positions and movements of the controls will be reproduced. Unless the KEEP button is down, you will see that OVERWRITE mode has automatically switched to AUTO-RETURN mode.
5. If there is any section of the mix that you want to correct, play over it and re-adjust the fader. Hold onto the fader until you want to return to the previous mix. If you want to re-write a long section, switch back to OVERWRITE mode and you won't have to hang on to the fader.

NOTE: Holding Ctrl and clicking on a mute button will start recording its status without actually operating the button. This can be used to overwrite a previously recorded button operation.

SNAPSHOT AUTOMATION

Whereas other automation modes are designed for recording dynamic changes to the mixer controls, the Snapshot Mode allows you to apply the same settings throughout an Entry or group of Entries.

This feature has a number of uses - for instance

- you can quickly set a level on a group of Entries without having to play across them in real time.
- you may want to set a different pan on alternating Entries on the same stream.
- snapshot EQ's are perhaps more useful in many cases than dynamic changes.

Note: Snapshot automation records ordinary automation data onto an EDL entry, in the same as you would if you held a fader or pot constant for the length of the clips. This is not a special type of automation, merely an automatic way of writing automation data if it's going to be constant.

However, because you need to select EDL entries on which to apply the snapshot, streams that have no entries - like mixer only streams (bus faders, output faders etc.) cannot be 'snapped'.

RECORDING SNAPSHOT AUTOMATION



1. Pressing the 'camera' icon on the Automation toolbar enables Snapshot Mode. You will notice the violet Snapshot Ready button will be pressed and all other Automation mode buttons are disabled except for the grey Disconnect.
2. Select the Entries in the Playlist that you want the automation to be applied to. You can change your mind about this whilst in Snapshot mode; the automation will only be applied to the Playlist Entries selected in red when Snapshot Mode is exited.
3. Set the mixer controls - faders, pans, mutes, EQ's etc., either in play or stop. Unlike other automation modes nothing is recorded as you go along. When you touch a mixer control it will be outlined in violet. If you want to change a control without putting it into Snapshot Ready mode, then click the grey Disconnect button before touching it.
4. Press the 'camera' icon again to exit Snapshot Mode. At this point the current position of every control outlined in violet will be set for every EDL Entry selected in red to which the control applies. For instance if you set a fader for stream 3 but only select entries on stream 1 then nothing will happen.

Note: Before you snapshot, it's advisable to have some automation recorded. When you first start automating none exists at all. If a snapshot is the first thing you do, you will find that the snapshot is applied across the WHOLE stream. Thus if you wanted to for example individually EQ or level change just one entry, then you should snapshot the 'flat' settings for the EQ or the base level to the all entries in the stream first.

DISPLAYING AUTOMATION DATA

You can display fader, pan and mute automation data for each Mixer strip. Each parameter - fader changes, pans, mutes, process parameters etc, can be displayed as a white line on each Stream routed to that strip. Stereo and merged Streams will display the appropriate number of lines. The position of the line indicates the fader level or parameter value.



The large button at the top left of the Playlist will display automation data on all Streams.

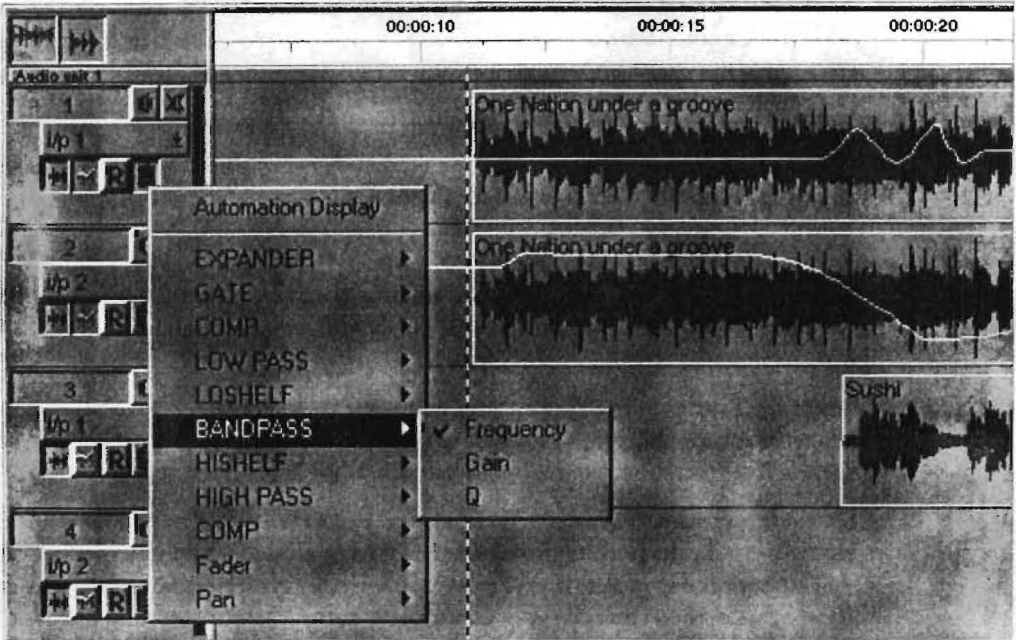
On the hardware controller this is duplicated by the AUTO button when the Playlist is the active window.



The small button by each Stream will display data for that Stream only.



The small fader button by each Stream allows you to choose which automation parameter to display. Selecting this button gives you a menu to choose from all available processes, or fader, or pan, and the sub-menu lets you choose which parameter within that process to display.



NOTE: If there are Mixer strips controlling internal busses or inputs, Streams to show their data will be found in the Stream unit labelled "Mixer only Streams". Double-click on the unit name to display or reveal this unit in the Playlist.
These Streams cannot have Entries placed on them.

EDITING AUTOMATION DATA

As an alternative to re-recording control movements, you can edit (alter) the data by directly manipulating the line displayed on the Playlist Stream:-



Use this button on the main Playlist toolbar to enable automation editing and display the Playlist automation toolbar.



The Entries on the Stream will go into outline and the automation data line will turn red.

This line, however curvy it looks, is made up of straight lines joining up a lot of "Automation Points" where the line changes direction. Each point is shown by a pink dot and a level indication when the mouse pointer is near it.

You can use the mouse to move an existing Automation Point or draw a box around several Automation Points and move them together, either horizontally or vertically, depending on the first movement of the mouse. Hitting Delete on the keyboard will remove the Automation points within the box and replace them with a straight line.

The three buttons - left to right - on the automation toolbar enable the following mouse functions to further manipulate the line.

1. Add a new point to the line and set its level.
2. (i) Draw a box around an area to create a "duck" or dip in level, the width and depth of which will be determined by the size of box you draw.
(ii) Adjust the depth of an existing duck by dragging its bottom up or down. Wildlife enthusiasts should enjoy that one.
3. Draw a box around an area of complex data (as usually results from fader or pan movements) and when button is released smooth the data so that it consists of fewer Automation Points.

HINT: You can remove ALL automation from an entry using an option available by right-mouse-clicking on the entry.

NOTES: Editing is not applicable beyond the last Entry on the Stream.

N.B. Stereo Entries must be on Stereo Streams if you want to edit the automation data of both left and right channels simultaneously (see under Playlist Streams in Chapter 4, *Arranging an EDL*).

INTERNAL RE-RECORDING

The Routing section explained how to set-up a bounce-down, which involves re-recording the audio internally. With a similar arrangement, you can re-record EDL Entries with processing and automation. Set up your routing like this::

REQUIRED PLAYLIST STREAMS → MIXER STRIPS(with processing) → NEW INTERNAL BUS → RECORD STREAMS

You can then play the Playlist, with any automation you have done while recording the result on new Streams.

You may choose re-record internally for a number of reasons:

- Convenience. You want the mixed or processed result to always appear as a single EDL Entry, or you don't want to bother with setting the Mixer or Automation to process the required Entries every time you play the EDL.
- To clear SCSI space. You want to re-record small parts of one or more much longer Tracks that you can then delete (as described under "Audio Disk Management", in Chapter 7, *File Management*).
- There is not enough DSP power available to carry out the processing you require in real time and/or play the number of simultaneous Entries you require. Process and re-record the necessary Entries with "Non-real time" selected in the Transport Controls' record section. Then you can use the processed versions in the full EDL. See Chapter 2, *Recording*.

MIXER ROUTING TUTORIAL

A mixer is a means of connecting many pieces of equipment and multiple channels of audio and mixing them together to produce a stereo (or multi-channel depending on configuration) master that you can listen to or record onto another piece of equipment.

SADiE’s mixing desk simulates a real mixing console , in the same way that the Playlist is simulating a multi-track tape recorder/player, and can be designed in a multitude of different ways.

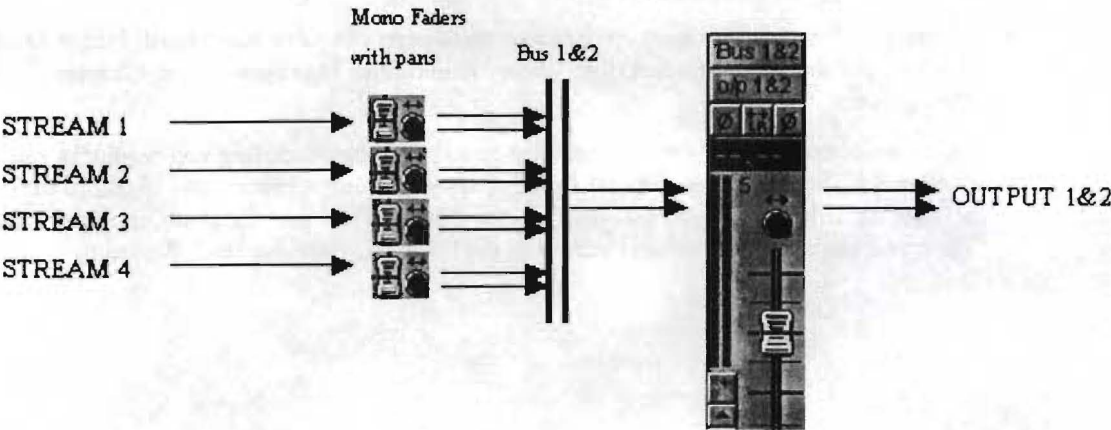
The vast majority of audio devices have Inputs and Outputs, and we are creating a continuous signal by passing the output of one device to the input of a second one. This next device processes the audio in some way (could be just level or pans or it could be more complex processing like reverb for instance) and then we connect the output of the second device to the input of a third and so on.

Let’s first consider the most basic setup, for instance you have a 4 track Playlist and you want to listen to all 4 tracks , mixed together into one stereo output.

We have 4 streams in the Playlist that must be connected via virtual “cables” to Outputs 1&2 so that you can listen to them. The concept of “busses” is perhaps one of the more difficult, but this is crucial to any understanding of mixer routing. We will use these as intermediate links to help connect everything together, and to allow us to use devices like pan pots.

In the real world a bus is a long strip of copper cable that runs along the desk. When you connect signals to a bus, they are added together, and then you can take that single signal and pass it onto something else - for instance a physical output, or perhaps ypage numbverou would send them to a reverb unit or similar.

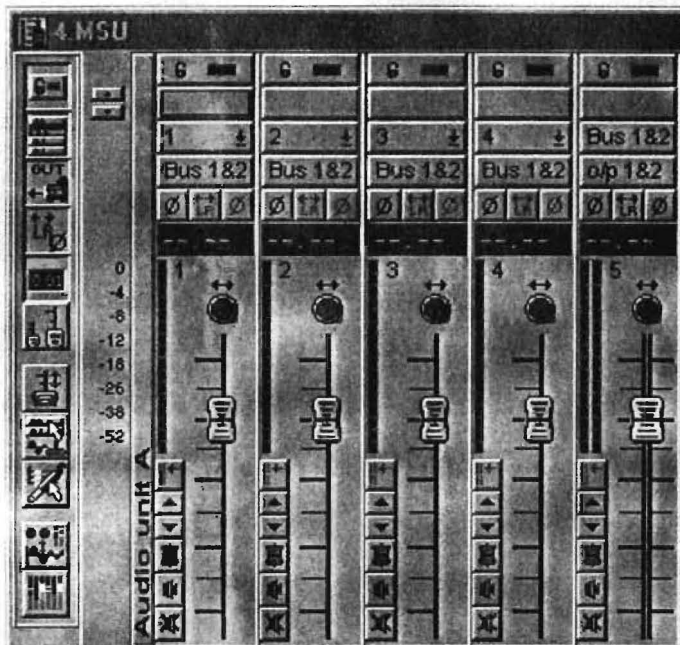
So in my simple stereo setup I have 4 Playlist streams, each of which we connect with wire to a fader strip. The reason we are connecting them to a fader strip is to allow us to change the level of that stream, and also a panpot on the strip allows us to feed some of each signal to the left side of our stereo image and some to the right. So each stream has now been converted, by the panpot, into a stereo signal.



We now connect all 4 stereo signals together by means of the *Bus*. So the left side of each pan pot is connected to this “copper cable” we’re calling Bus 1 and the right side to Bus 2. We could have connected them directly to the physical outputs and we would be able to hear the mixdown in that way, but the reason we create a Bus is so that we can put another fader between this Bus and the physical outputs in order to give us a level control over the entire mix.

In SADiE we can ignore the connecting cables, but we have to decide where the input and output of every device is coming from and going to respectively.

So our basic mixer described above, with all the buttons showing, looks like this:



Note: if you are changing the routing of your mixer, it's important to view the Output Bus buttons - these are revealed by pressing the button on the toolbar that's third from the top in the picture above - the one with OUT on it. If you can't see this the issue will be confused even further.

The important buttons here are the two rows labelled :

1 2 3 4 Bus 1&2

Bus 1&2, Bus 1&2, Bus 1&2, Bus 1&2, o/p 1&2


These two rows are respectively, the 'Input Bus Buttons' and the 'Output Bus Buttons' and are used to select input and output for each fader strip. Press the button and select from the drop down list to change the selection.

From the left, we have 4 mono faders, each with a panpot. The inputs of these faders are named 1,2,3,4 and these are names of the Playlist streams. The outputs of these first 4 faders are all going to Bus 1&2.

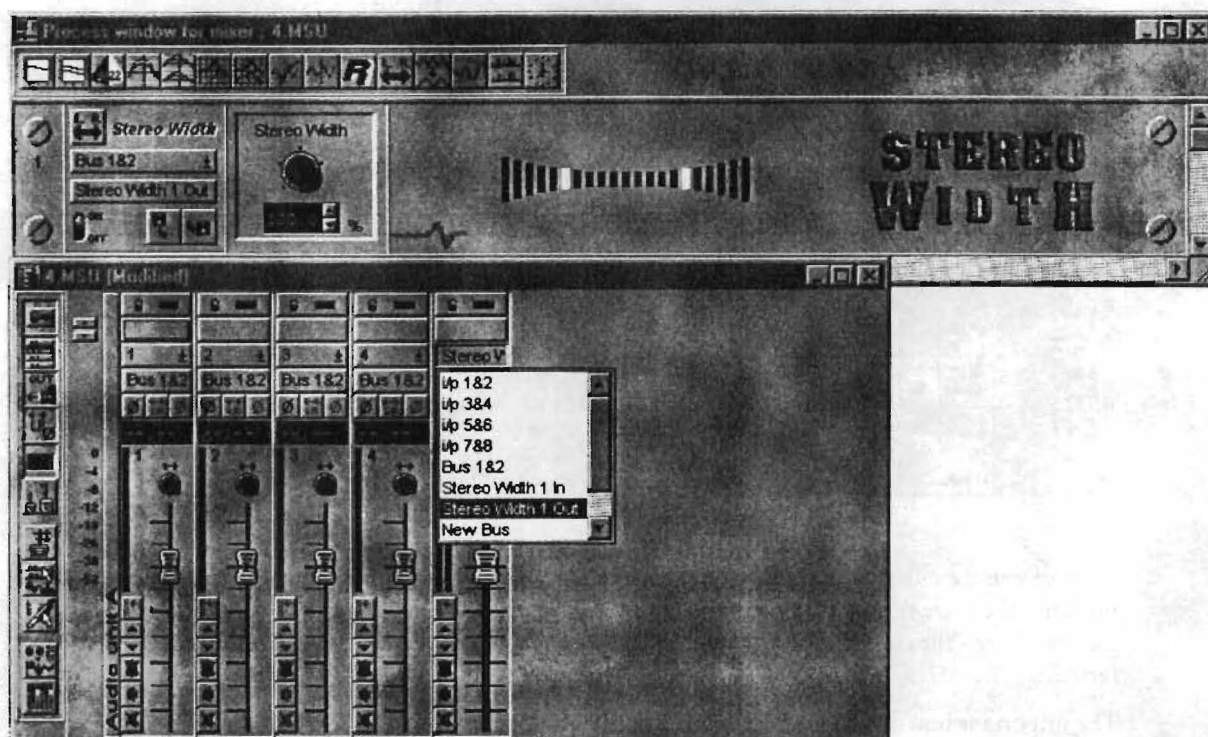
The last fader on the mixer - the yellow one, is our master level control. This is gathering up everything that's appearing on Bus 1&2 and sending them, via the fader, to the outside world by using Output 1&2. So it takes its input from Bus 1&2, and its output is set to Outputs 1&2 (labelled o/p 1&2).

The next stage might involve introducing a plug-in into your mixer. For this example we'll put a Stereo Width process in the chain, although this routing method could easily apply to any stereo plug-in.

We are going to break the chain in the first example, between Bus 1&2 and the master fader and slot the Plug-in in between. Thus Bus 1&2 are now going to be connected to the input of the Plug-in, and then to complete the chain again, we're going to connect the output of the Plug-in back onto the input of the master fader.

So we open up the Process 'Rack' by clicking on the button that second from the bottom in the picture above. An empty 19 inch rack unit will appear, and we drag the appropriate icon (in this case ) from the toolbar onto the empty rack.

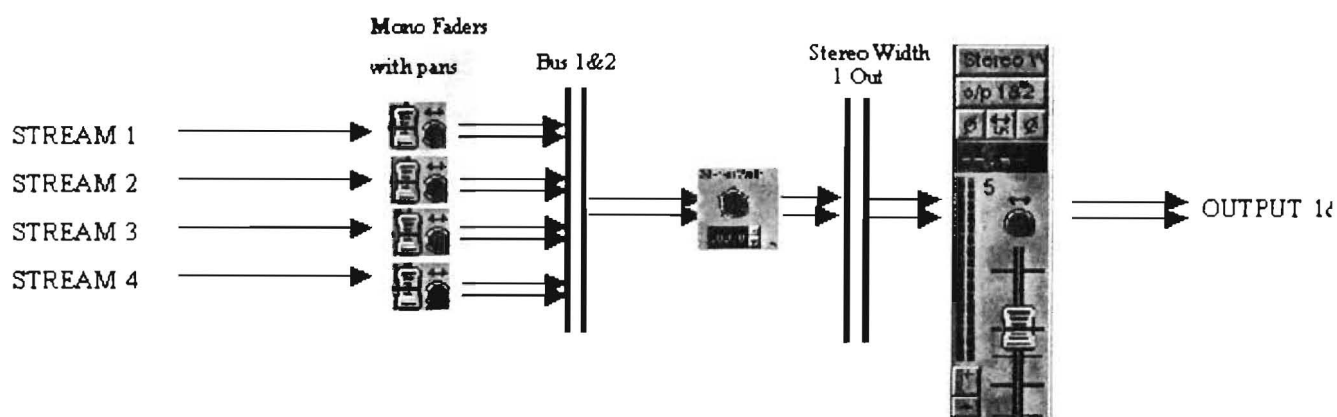
It will look a little like this:



When the Plug-in is first dragged onto the rack, the routing buttons on the left hand side of the Plug-in will say (for its input) 'Stereo Width 1 In' and (for its output) 'Stereo Width 1 Out'. These are names of the new busses that the Plug-in has created in order to connect it up. In this example we won't use 'Stereo Width 1 In', because we are going to connect Bus 1&2 directly to the Plug-in (and thus all 4 streams will be going through the Plug-in and being processed for width).

So, click on the top, input bus button for the Plug-in and select Bus 1&2, leave the bottom output button as it is. We now have to connect the output of the Plug-in back into the mixer. So we go back to the main mixer, and click on the top button on the yellow master fader, selecting 'Stereo Width 1 Out' as per the picture above. Done !

Our routing diagram now looks like this:



As you can imagine this routing allows for many, many complex possibilities, and it does require some care if your mixer is going to include a number of different plug-ins operating on a number of different streams of audio. When you have built a mixer that you feel you'll want to use again, then you may want to save it as a Template (see Chapter 9). The whole purpose of a mixing desk is to provide these complex interconnections, but the fundamental concepts are:

- A device's output connects to another device's input.
- Busses provide a means of adding signals together and routing them onto another area of the mixer.
- In SADiE terms a fader or plug-in's input can be from a Stream, Bus or Physical Input, its output can be a Bus or a physical Output.
- An audio signal must eventually make its way to a physical output - just follow the signal path through all its routes if you're seeing error messages.

7 - FILE MANAGEMENT

OVERVIEW

Work in SADiE™ is held in a number of files. Firstly there are the Tracks - sound files of the audio as originally recorded into the system - these are stored on dedicated audio disks. Looking after these is covered in "Track management", below.

Then there are the files that represent the work you have done to the raw material. These are:

EDLs (how and when to play back which parts of the Tracks),

Mixer setups (a record of the Mixer configuration needed to play the EDL) and

Clipstores (a useful store of Clips for later use).

There are also files called

Projects, which group all the above files as **components**, together with a list of relevant Tracks. A Project file can then represent all the work for a particular job.

Just like the documents of a word processor, these files need to be saved so that they can be opened later for further work or playback. They are stored on the DOS hard drive of the PC.

Creating, opening, saving and closing EDLs, Mixers and Clipstores can be done:

1. From the Project window. Files created this way will become **components** of a Project

NOTE: We strongly recommend that you always start work within a Project, as to later create a Project from non-Project-files requires importing all components individually. It also makes saving, reloading, archiving and keeping track of your work much easier.

Working within Projects is described later in this chapter, following the basic explanation of the component EDLs, Clipstores and Mixer setups.

2. From the File menu, with the New, Open, Save and Close commands.

"New" creates a new EDL, Mixer or Clipstore outside the Project structure.

"Open", "Save" and "Close" refer to the type of file shown by the currently active window (shown by a highlighted title bar). To make a window active, click on it anywhere or use the WINDOW button on your hardware controller.

"Save" saves a file under its current name, thus overwriting the previously saved version.

"Save As" allows you to rename the file, thus keeping the previous version.

The dialogue boxes that appear following "Open" and "Save As" allow you to open different folders to find your file or to choose the folder that you want to save it in.



2. EDL files can be opened and saved from these buttons on the Playlist toolbar. Note that this button is "Save" and not "Save As".
3. You can also, of course, close the file shown in any window by double-clicking on the icon to the left of its title bar, or - with Windows 95® - by clicking on the close button on the right of its title bar.

EDLs

EDL files are given the file extension ".EDL", so a typical name in full is "FRED.EDL".

Creating a new EDL opens an empty Playlist window for you to start work in.

Opening a previously saved EDL opens a new Playlist window containing that EDL.

- Any previously open Playlists will stay open and you can switch between Playlists under the Window menu, from within the Project window or by using the WINDOW button on your hardware controller.

Saving the EDL in the currently active Playlist window will save the file to the PC's DOS drive. The first time you use save a file, you will be asked to name it; after that, the "Save" command will save the file with the same name as before, overwriting the previous version. If you think you might want to keep the previous version, use the "Save As" command. This will let you give the new version a different name. Take care to open the folder that you want it saved in. The file extension ".EDL" will be automatically added to the name you type.

Closing an EDL closes the Playlist window that is displaying it. You will be prompted to save the EDL if it has been changed since last saved.

NOTE: The EDL file that you save includes the layout and names of the Streams in the Playlist displaying it and any Automation data - i.e. fader and other control adjustments in the Mixer. However, you will need to save the Mixer setup that goes with the EDL separately, as described below. If you work within a Project, this will be done for you when you save the whole Project

EDLs can be saved as a TEMPLATE using the FILE menu option **Save current playlist as a template**. EDL templates have the file extension 'EDT'. See *Chapter 9 Playlist and Mixer Templates*.

CLIPSTORES

A Clipstore is a useful holding place for Clips that you may later want to add to an EDL. These may be versions of Tracks with specific fade and level characteristics, or parts of Tracks. Clips created in the Playlist window or the Trim Editor can be saved to the active Clipstore, where they can be grouped in folders.

A special folder labelled "Source Tracks Folder" will appear in the first Clipstore that is opened or created, so the Clipstore is also useful for accessing any audio on the system.

- If you are working within a Project, the Source Tracks folder will contain all the raw Tracks being used by this Project.
- If you work outside of Projects, it will contain all the raw Tracks the root directories of all your logged audio disks. If you are using a SADiE2 formatted drive this will in fact be the entire contents of the drive, whereas a SADiE3 formatted drive will only show you audio Tracks that were created outside of a project.

NOTE: The Source Tracks folder is not saved as part of the Clipstore file. It is added to it to enable you to access Tracks on the audio disks. Clips in the Source Tracks folder are not editable. See "*Track Management*" below for more details about the Source Tracks Folder.

Clipstore files are given the file extension ".CLS", so a typical name in full is "FRED.CLS".

Creating a new Clipstore opens a new Clipstore window with no Clips in it.

Opening a previously saved Clipstore opens a new Clipstore window containing the saved list of Clips.

- Any previously open Clipstore windows will stay open and you can switch between them under the Window menu, from within the Project window or by using the **WINDOW** button on your hardware controller.

Saving the Clipstore shown in the currently active window will save the file to the PC's DOS drive. If you use the "Save As" command, or if the Clipstore has not been saved before, you will be prompted to give the file a name, and can select which folder it is saved to. The file extension ".CLS" will be automatically added to the name you type. If you use the "Save" command, the file will be saved with the same name as before.

NOTE: You only need to save a Clipstore if you have deliberately stored specific Clips in it, as described below. In many cases, you may never want to do this and all your work will be contained in EDLs. However, it is often useful to save a list of Clips that have been "topped and tailed" or selected from much longer Tracks before you put them together in a specific order, in an EDL. It's a bit like having a shelf full of small insert reels for a particular programme, or can be used to make a library of Sound Effects.

Closing a Clipstore closes the window displaying it. You will be prompted to save it if it has been changed since last saved.

NOTE: If you close the Clipstore that contains your Source Tracks folder, you can get the folder back by opening a new Clipstore or closing and re-opening an existing one.

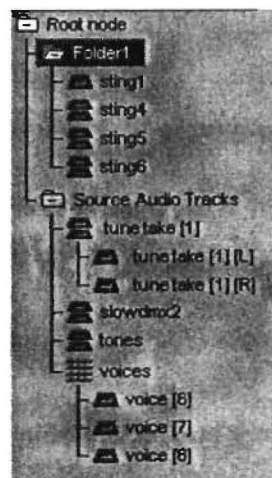
USING THE CLIPSTORE WINDOW



To select a Clip in the Clipstore with the hardware controller, use **WINDOW** to make the required Clipstore the active window, then the wheel will scroll through all the Clips. (Make sure it is not selected to jog or shuttle.) Alternatively, the **PREVIOUS** and **NEXT** buttons will step through the list.



With the mouse, click on a clip to select it. As with most Windows® applications, multiple selection of items in the list can be made by selecting them while holding the Ctrl or Shift keys.



The Root Node is the "top of the tree" for this Clipstore and Clips can sit at this level, or be grouped into folders. Double-clicking opens and closes the folders to view their contents.

Mono Clips/Tracks are shown with single blue icons.

Stereo Clips/Tracks are shown with green, double clip icons. Double-clicking on these reveals the left and right channels for separate selection.

Multi-channel Clips/Tracks are shown with red icons (as "voices" here). Double-clicking on these will reveal their component stereo or mono parts for selection.



To open or close stereo and multi-channel Clip icons with the hardware controller, select the Clip and then press EDIT/SELECT.



Clips can be listed alphabetically by name, or grouped by type (first stereo, then mono, then multi-channel).



NEW FOLDER

Allows you to create and name a **NEW FOLDER**. You first need to select the folder that you want it to appear in - this may be the Root Node, or another folder.



PREVIEW

The **PREVIEW** button will play the selected Clip from in point to out point, or until you release the button.



The Transport controls apply to whichever is the active window and can be used for previewing selected Clips.



RENAME

Allows you to **RENAME** a Clip or a folder.



DELETE

Allows you **DELETE** a Clip (or clips) or a folder from the Clipstore.

NOTE: Deleting a Clip will not delete any audio from the SCSI disk, but it will delete the reference you have created to a particular piece of audio, with particular level and fade characteristics.



SEARCH

The **SEARCH** button lets you search for clip names with given text which can include the character * to represent any number of “wild” characters. The two buttons next to it review search results and return you to the full Clipstore listing.

The details columns to the right of the tree of names can be customised, as in the Text EDL, by selecting options from the box that drops down when you click on any of the headings.

NOTE: When the Clipstore is the active Window, a Clipstore menu will appear on the main menu bar. This duplicates the above buttons for **NEW FOLDER**, **SORT BY NAME/TYPE** and **SEARCH**.

STORING CLIPS IN A CLIPSTORE

You may want to store the new Clip you have created by editing in the Playlist or the Trim Editor:



COPY TO CLIPSTORE

Select the Entry in the Playlist or the Clip in the Trim Editor and press the **COPY TO CLIPSTORE** button on that window’s toolbar.



On the hardware controller, use **WINDOW** to make the required Playlist or Trim Editor the active window and **CUT** or **COPY** the Entry or Clip to the paste buffer. This is described in Chapter 4, *Arranging an EDL*, and the Trim Editor section of Chapter 5, *Editing*. Then select the required Clipstore as the active window and **PASTE** the Entry into the Clipstore.

MOVING CLIPS AROUND CLIPSTORES



Clips can be copied and moved around between folders of the same Clipstore, or between different Clipstores by dragging with the mouse. Dragging moves the Clip and holding the Ctrl key while dragging copies it. You will not be allowed to alter the contents of the “Source Tracks” folder, but you can copy Tracks from it to other folders.



On the hardware controller, use WINDOW to make the required Clipstore the active window, then the wheel will scroll through all the clips if it is not selected to jog or shuttle. You can CUT or COPY highlighted Clips to the paste buffer and PASTE them into the next Clipstore and folder you select.

MOVING CLIPS TO OTHER WINDOWS



The selected Clip can be loaded to the paste buffer for pasting into a Playlist, or dragged directly to the Playlist window. See Chapter 4, *Arranging an EDL*.



The selected Clip can be loaded to the Trim Editor to be altered and the new version saved back to the Clipstore.

CUT or COPY the selected Clip, then PASTE it into the next window you select.

CLIP DETAILS



You can bring up the Clip Details window for a selected Clip and make changes to it there, before “writing back” the new version and thereby re-saving it in the Clipstore. See the Clip Details Window section in Chapter 4.

USING ONE CHANNEL OF STEREO/MULTI-CHANNEL CLIPS

You may want to use just one channel of a stereo or multi-channel Clip:

- Double-click on the Clip or Track in the Clipstore to reveal the separate parts. On the hardware controller, select the Clip and then press EDIT/SELECT. Stereo components of multi-channel Clips can be further opened to show separate mono channels.
- You can now select just one channel and paste it into the Playlist.

MIXER SET-UPS

Mixer Set-ups are given the file extension “.MSU”, so a typical name in full is “FRED.MSU”.

NOTE: There can only be one Mixer connected to SADiE’s outputs, so only one Mixer window may be open at a time. Creating a new Mixer or opening a saved Mixer set-up therefore closes the existing Mixer window.

Creating a new Mixer replaces the existing one with the default set-up. This is specified in the Setup window displayed from the View menu.

Opening a previously saved Mixer replaces the existing one with the saved set-up.

Saving the current Mixer set-up will save it as a file to the PC’s DOS drive. If you use the “Save As” command, or if the Mixer set-up has not been saved before, you will be prompted to give the file a name, and can select which folder it is saved to. The file extension “.MSU” will be automatically added to the name you type. If you use the “Save” command, the file will be saved with the same name as before.



Closing a Mixer closes the window displaying it. You will be prompted to save it if it has been changed since last saved. You can re-display the current Mixer set-up with the **SHOW MIXER** button on the Playlist toolbar.

Mixers can be saved as a **TEMPLATE** using the **FILE** menu option **Save current mixer as a template**. Mixer templates have the file extension 'MST'. See *Chapter 9 Playlist and Mixer Templates*.

PROJECTS

To make handling the above files more convenient, they are grouped together as **components** of individual **Projects**.

Every Project also has a list of audio Tracks associated with it. This is the list of Tracks that appears in the Source Tracks folder of its Clipstore.

Each new Project that you name creates a folder of that name on your DOS drive under the path C:\Projects. This contains the files for the individual components and the actual Project file itself, which has the file extension ".PRJ".

If you are using a version3-formatted audio disk, a folder is also created there, to group Tracks recorded under the Project.

Once you are working within a Project, you can use the Project window to create, save, open and close all the individual components that make up your work. When you save the whole Project, all these are saved together. Next time you work on the Project, the Project window will only show the components that are relevant to that piece of work. The Source Tracks Folder that is created in the Clipstore only contains audio that is being used by the Project.

Whole Projects can be deleted to delete all associated files in one go.

You can only ever have one Project open at a time and so must close the currently open Project before opening or a saved one or creating a new one.

Projects can be backed up to the SCSI disk which contains the audio Tracks, and this may be transferred to another machine or posted across a network. When you want to return to a Project that has been backed up in this way, you restore it (and its components) to the DOS drive in order to do further work.

A Project and its associated Tracks can also be backed up to other SCSI devices like Exabyte tape or MO disks for longer term storage.

START-UP

You are presented with the following box when you run SADiE:



You can then either close the box and start work with an empty Playlist and a default Mixer and Clipstore (which would have to be saved and kept track of separately, or arranged into Projects later) - or choose to:

1. Open the Project that was last worked on (the current Project).
2. Open an existing Project, that you have previously saved.
3. Create (and name) a new Project.
4. Restore a Project that has been backed up to a SCSI storage device.

Note the underlined letters that act as keyboard shortcuts instead of using the mouse.

Once SADiE is running, these facilities are provided from the full range of options in the Project menu described below.

MANAGING PROJECTS

Projects are created, opened and closed from the Project menu on the main menu bar.

Commands that are not currently available are “greyed out” in the list - for example you cannot open a Project until you close the current one.

New Project When you create a new Project,

1. If you have more than one SCSI audio disk you will first be asked which disk you want to use to record Tracks associated with it. You can also tell SADiE to use whichever disk has most space.
2. Then you will be asked to give the Project a name and the Project window will open. SADiE will have created a new EDL/Playlist, Clipstore and Mixer named after the Project. These will start off in a default state and after use in the normal way will be saved, closed and re-opened as part of the Project. You can create additional components as well as one layer of “Sub-Projects” within each Project - useful for episodes within a series, for example.

NOTE: A newly created Project will have no tracks associated, and hence the Source Tracks Folder of the Clipstore will be empty. However any or all of the Tracks on the SCSI audio disk(s) may be easily imported, as described below.

Open Project Lets you open an existing Project from those saved on the DOS drive. The Project window will appear (if minimised it will be reduced to a box at the bottom of the screen - press its maximise button, or select it from the “Windows” menu).

NOTE: The list of recently used files at the bottom of the File menu will always allow you to directly open your last used Project.

Save Project Saves the current Project and all its components that have been changed since they were last saved.



NOTE: When the Project window is active, this is duplicated by the File | Save command and the hardware controller SAVE button.

Close Project Closes the current one so that you can open a different Project to work on.

Delete Project Closes the current Project and deletes its folder and all component files from the DOS disk. If you are using SADiE3-formatted audio disks, you will have the option of also deleting all audio Tracks associated with the Project.

Cleanup Project Offers selections to enable you to automatically “Tag” or mark audio tracks for backup or deletion.

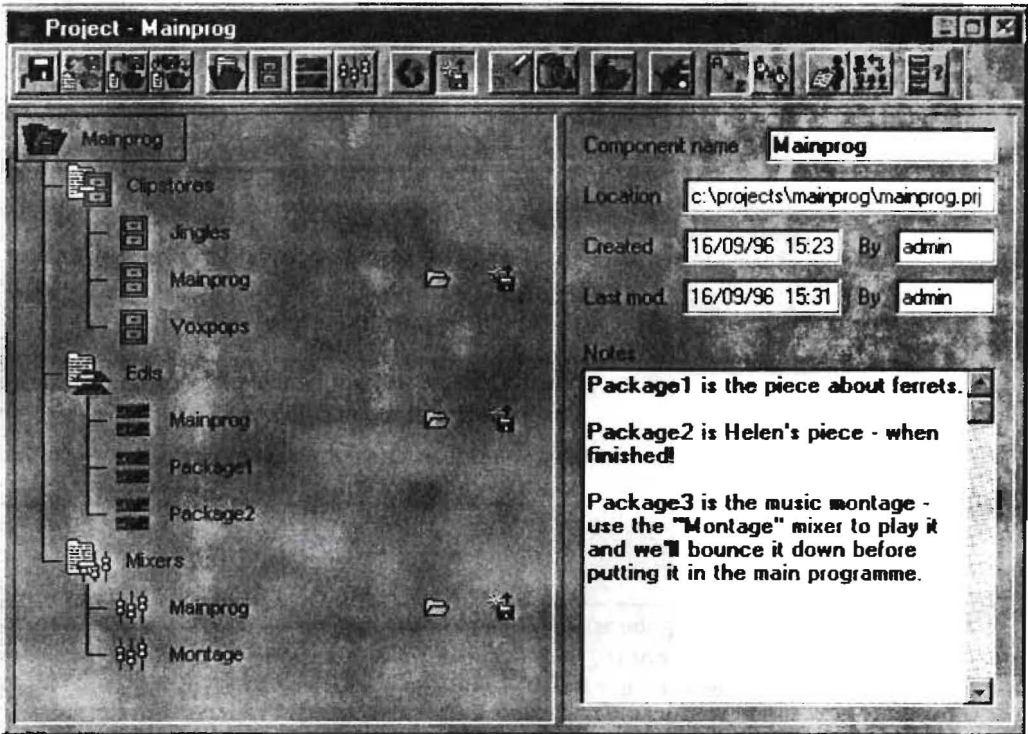
Backup Project Displays a box with two options:

1. Backs up the current Project components by copying those files to the SCSI audio disk being used for the Project’s Tracks. The disk can then be stored or transferred to another system, or its contents posted across a network.
2. Backs up the Project and all the audio Tracks in its tracklist to another SCSI storage device, such as an Exabyte tape.

Restore Project Displays a box with two options:

1. Restores a Project that was backed up to an audio disk by copying its components to the DOS drive, then asks you if you also want to open the Project.
2. Restores a Project’s Tracks and components from another SCSI device, such as Exabyte tape.

MANAGING WORK WITHIN A PROJECT



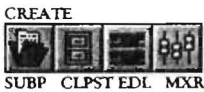
Once you have opened or created a Project, the Project window will appear and you will be able to see all its associated components in a tree structure, as in Windows® File Manager or Explorer. Double-click on folders with + and - signs to reveal or hide their contents.

Components of projects are EDLs, Clipstores, Mixers and Sub-Projects. Opening, saving and closing components from within the Project window has exactly the same function doing the same thing from SADiE's File menu - it is just a far more convenient way of doing it and keeping track of everything!

An open yellow folder will appear against open components in the Project window. A red exclamation mark will appear next to the folder when you do anything to a component (e.g. edit an EDL) to remind you that it has been changed since you last saved it. The AUTO OPEN COMPONENT tag means that the component will open automatically when the Project is first opened.



NOTE: All buttons in the Project window are duplicated by right-clicking on the relevant areas of the name tree - you may find this more convenient than identifying the buttons.



Further components may be named and created with the CREATE SUB-PROJECT, CREATE CLIPSTORE, CREATE EDL and CREATE MIXER buttons. If right-clicking, you will find them under "Create a new..."



The most useful way to save your work is to SAVE PROJECT, which will save all the components of a Project in one go.

NOTE: This is duplicated by the SAVE button on the hardware controller when the Project window is active, and by the Save Project command in the Project menu.



Existing individual components may be opened, saved and closed by selecting them and hitting the OPEN/SAVE/CLOSE COMPONENT(S) buttons.

NOTE: Double-clicking on a component will open it directly and is a useful way of bringing its window back in view.



IMPORT COMPONENT allows you to bring a component into the current Project. For example, a Mixer saved outside of any Project, or a Clipstore from another Project. You have two options: importing the original file into this Project, or importing a copy of it.

NOTE: If you import the original file, it will not be moved from its current folder on the DOS drive, but the current Project will retain a link to it.

If you import a copy, you can work on it and save new versions in the current Project while leaving the original where it was.



REMOVE COMPONENT removes the selected component from the listing in this Project window.

NOTE: You will also be asked if you want to delete the component file from the DOS drive. If you choose not to, it will remain in the folder where it was originally saved and can be imported into any Project or opened outside Projects.



When you open a Project, if a component file has been moved on the DOS drive or had its name changed, SADiE will not be able to locate it. A warning message will be displayed and the missing component will appear in red in the Project window. The LOCATE COMPONENT command will then let you browse through different folders, and when you find the missing file, will update the Project to keep note of its new location.



DISPLAY USERS and EDIT USER LIST let you to display or alter the list of users allowed to open the Project. The user that created the Project is its "Project Manager" - indicated by a tick in the "Manager" box - and only he/she can add or delete users from the list or promote other users to "Project Manager" status. Note, however, that System Administrators can open all Projects. The User Management software for multiple-user installations is described in *Appendix E*, and outlined in Chapter 1, *Getting Started*.



SELECT AUDIO DISK allows you to specify which of your SCSI disks (if you have more than one) is used to record Tracks associated with the Project. Alternatively, you can tell SADiE to use whichever disk has most space.



TAG SOURCE AUDIO TRACKS allows you to quickly mark which audio Tracks will be backed up when "Total Project Backup" is chosen. See *Archiving* below. The Tag marks can also be used for deleting audio that is no longer in use - see *Cleanup Project* below.



LIST MISSING TRACKS is for removing links in the project to audio tracks that no longer exist. See *Missing Tracks* below.

SUB-PROJECTS

Sub-Projects are a useful second level in the Project structure when different users are working on different parts of a Project. The Project that is open when you create Sub-Project(s), becomes the master Project.



The master Project will show the Sub-project as a component, but will not show all the sub-Project's own components unless they have been marked for global access to the master (with the **EXPORT COMPONENT** button). This is to mask possibly huge numbers of works-in-progress from the master and only make available the latest or best versions.

To work on a sub-Project, once it has been created, select it from the list at the bottom of the Project menu. This effectively makes the sub-Project become the current Project. To return to the master Project, use the menu list again.

CLOSING THE CURRENT PROJECT

The only way to close the current Project is from the Project menu.

You will be prompted to save any unsaved components, and the whole Project.

DELETING THE CURRENT PROJECT

The **Delete Project** command on the Project menu closes the current Project and deletes its folder and all component files from the DOS disk. If you are using SADiE3-formatted audio disks, you also have the option of also deleting all audio Tracks in the Project's folder on the audio disk - i.e. Tracks that were recorded under the Project.

This will not delete audio imported into the Project, so a "Library" of sound effects is safe when deleting other Projects that use its Tracks.

You cannot delete a Project that contains Sub-projects - these must be separately deleted first.

BACKING UP A PROJECT TO THE AUDIO DISK

To back-up the current Project to the audio disk, select **Backup Project** from the Project menu, then select "Backup Project Components to the Audio drive"

All the files for the Project will be copied to the audio disk, which can then be removed and stored, put into another system or posted across a network.

To restore a Project from an audio disk, select **Restore Project** from the Project menu, then "Restore Project components from an audio drive".

The Project files will be copied to your PC's DOS drive and a further box will let you open the Project for more work.

FILE RECOVERY

If you exit SADiE incorrectly, either:-

- without shutting down properly (described at the end of the Tutorial in Chapter 1, *Getting Started*),
- because you suffer a power cut, or
- because your computer crashes (yes, lets admit it - it does happen!),

then SADiE will attempt to recover the Project, EDLs, etc. that were in use at the time of the problem.

When you next run SADiE, you will be asked if you want to return to the recovered versions. This is your only chance to recover work done since the last "Save" command - so say yes!

BACKUP FILES

Whenever you save a file using an existing name (this happens with the "Save" command), the previous version with that name will be overwritten. However, it is not immediately lost. SADiE keeps the last version as a backup file, with the file extension ".BKE" for EDLs, ".BKC" for Clipstores, ".BKM" for mixers, etc.

To open a backup file, use the normal "Open" command, but in the dialogue box change the types of files listed to "All files". You will then see backup files included in the list and you can open the appropriate one.

TRACK MANAGEMENT

THE SOURCE TRACKS FOLDER

During any SADiE session a Clipstore will contain a special folder which gives you access to the raw audio Tracks in use. Inside a project this is all the Tracks associated with the Project - this list is saved with the Project. Outside of Projects, it will be the entire root directory of your disks. Operation of the Source Tracks Folder inside a Project will be described below in detail, however, it is essentially the same when working outside Projects.

The Source Tracks Folder provides a means of managing the audio Tracks that are being used in the current session and adding, removing and archiving audio belonging to your current work should be done here. For a more global view of the contents of your discs you should use Disk Management.

There is only one Source Tracks folder and it appears in the first Clipstore opened. If no open clipstore contains the Source Tracks Folder, then opening another, or closing one and re-opening it will make this special folder re-appear.

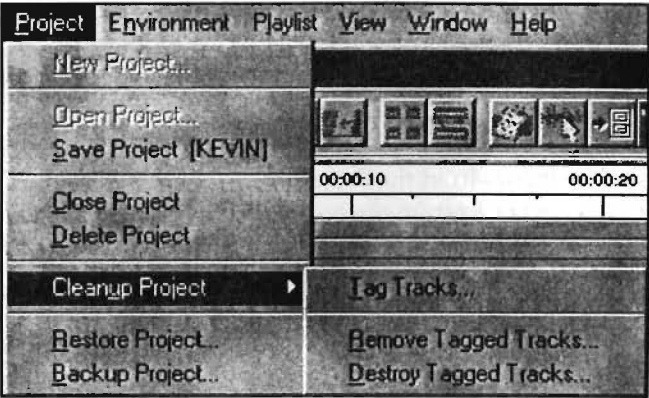
Tracks appear in the Source Tracks Folder if:

1. They were recorded while the current Project was open, or
2. They have been imported into the Project.

Much the same functions are available in the Clipstore for clips from the Source Tracks Folder as for other clips. You can drag or cut and paste these as clips into EDLs or other folders in the Clipstore. You will notice however, that for these Source Tracks Clips all the fields in the right-hand table of the Clipstore are greyed-out and hence it is not possible to edit these parameters.

CLEANUP PROJECT

The CLEANUP PROJECT functions, available under the Project menu, gives you extra tools to help manage your audio tracks within the project.

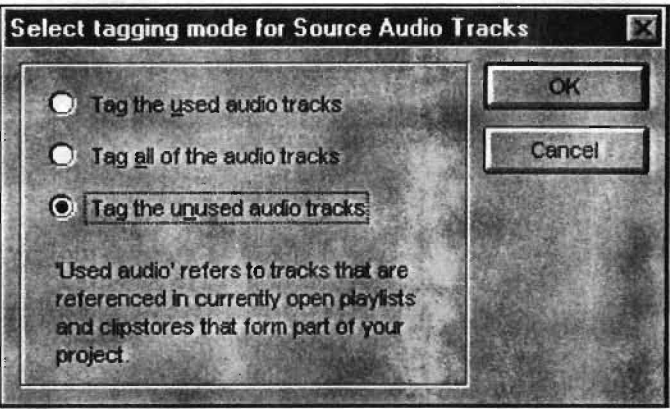


You would use these functions for the following purposes:

- To remove or delete audio which is no longer used by the project - alternative or old takes; tracks that were imported by mistake or unnecessarily.
- To archive the project along with all or some of its audio tracks.

Choosing the Tag Tracks option, allows you to automatically mark or 'Tag' tracks that either do or don't belong to some components of the project.

Tag tracks gives us this window:



'Tag all of the audio tracks', changes the Tag mark on EVERY track in the Source tracks folder for the project.

The 'Tag the used audio tracks' option operates on every EDL and clipstore that is currently OPEN. This includes minimised components. Note that clipstore does not include the Source tracks folder (which does not strictly belong to that clipstore, it belongs to the project itself). This function searches through all the open components and tags every track as YES that is in use, and tags everything else NO.

'Tag the unused audio tracks' does the reverse - tagging unused tracks YES and used tracks NO.

Inside the Source tracks folder, the Tag mark for each track can be manually changed, to allow you to override the automatic selection. You may have to change the table display of the clipstore to show a 'Tagged' column.

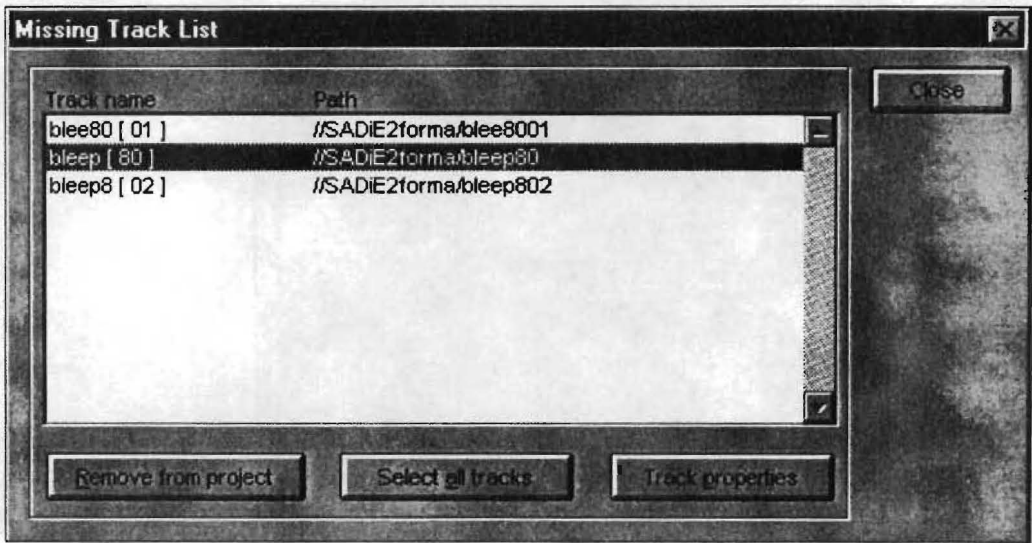
There is an extra Tag option - ALWAYS. This is a permanent mark - ALWAYS tracks are always copied, never deleted, and never changed by the auto-tagging operations. Double-clicking on the Tagged field changes a NO to YES and vice-versa; right-mouse clicking toggles it between ALWAYS and NO/YES

To DELETE the tracks you've tagged - from the Project menu, select Remove or Destroy - as usual, remove just disassociates the tracks from the project, whereas Destroy permanently deletes them (never to return !). Of course you're most likely to want to remove or destroy Unused tracks, so be careful that you've selected the right tagging option.

To BACKUP the Tagged tracks, from the Project menu, select Backup Project. Then select 'Total Project Backup to a storage device', and select the drive you wish to archive the project to. The backup will proceed as per the Project Backup procedure -see below.

NOTE: 'Total Project Backup to a storage device' only ever archives tracks that are tagged YES. Choose 'Tag all of the audio tracks' in the Tag tracks window.

MISSING TRACKS



The SOURCE TRACKS FOLDER of the Clipstore displays all the audio tracks that belong to the project, but there are occasions when some tracks are not available - perhaps a disc drive containing associated tracks is no longer on line.

SADiE will warn you of missing disc drives when it encounters them on loading a project, but still retains a record of these 'missing tracks'. When they return then the Source tracks folder will refresh. But there are times when perhaps these missing tracks are no longer needed for the project, and you may want to remove the link to them completely



LIST MISSING TRACKS gives you a list of these tracks and allows you to permanently remove them if you wish.

THE SOURCE TRACKS TOOLBAR



You will notice that clicking on a Source Track makes the buttons on this toolbar change colour from grey to show that these functions are now available. Also, right mouse clicking on a Track gives different options to those shown when clicking on normal clips.

The Tracks are listed together with columns of details. The columns can be customised by selecting alternatives from the box that appears when you click on their headings buttons.

As with most Windows® applications, multiple selection of items in the list can be done by selecting them while holding the Ctrl or Shift keys.

NOTE: A newly created Project will have no tracks in the Source Tracks Folder, but any or all of the Tracks on the SCSI audio disk(s) may be easily imported:-



IMPORT TRACK opens a portion of the Disk Manager window so that you can select:

- Individual Tracks from any audio disks,
- A whole disk or folder.
- Groups of Tracks by either i) clicking on a Track while holding the CTRL key to add it the group selection or ii) clicking on the top Track in a range that want to select, then hold the SHIFT key and click on the Track at the bottom of the range.

The tracks will then be added to the Source Tracks Folder for the current Project.

NOTE: An imported Track may still belong to a Project that it was originally created with. Deleting the original Project can delete such a Track.

Tracks that you want to be available to many Projects should be held in a Project such as "Library" or "Effects" that you know you won't delete.



REMOVE TRACK removes the Track from the Tracklist for the current Project without deleting it from the audio disk.



DESTROY TRACK removes it from the Tracklist and deletes it from the audio disk entirely. It cannot be retrieved!



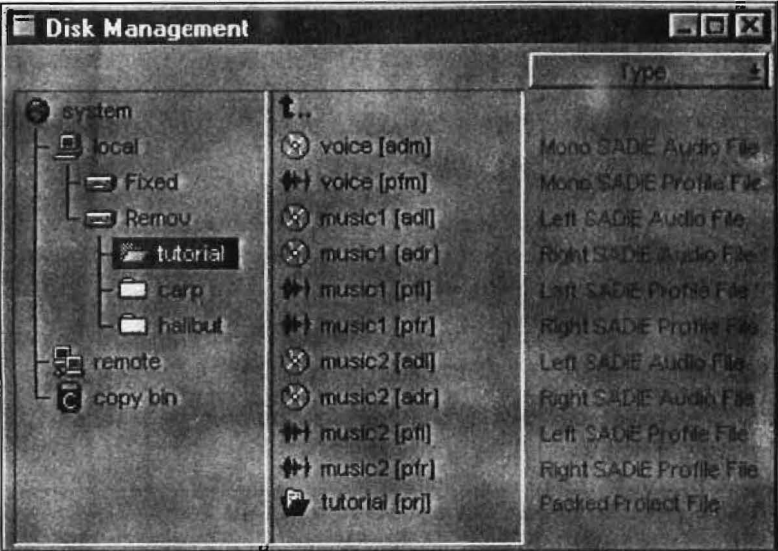
RENAME TRACK allows you to change the name of the Track.

NOTE: What name gets changed by this function depends on the audio file format. With SADiE3 format files, the Track name is different from the file name on the audio disc, and so Rename Track will not change the file name, but will change the Track name in the Source Tracks Folder. You can see a Track's file name and location on the disc in the Source Tracks Folder, if you display the PATH field in the table. With a SADiE2 format file, changing the Track name will also change the file name, and thus any saved EDLs may not be able to find the Track. It's safest to not rename Tracks or Audio Files - change the name of the Clips or EDL entries instead.



TRACK PROPERTIES shows the Properties box for that Track (see Chapter 2, Recording).

AUDIO DISK AND FILE MANAGEMENT



The Disk Management window is displayed from the File menu. It shows the SCSI devices on your system and the files that are on each of them in a tree structure like Windows® File Manager or Explorer. Double-click on items in the tree to open or close them like folders.



CREATE
SUBDIRECTORY

On a SADiE3-formatted disk, sub-directory folders will be shown for each Project. You can create further folders by right-clicking on the folder or disk name, or selecting it and using this button.

The SCSI disk that we refer to as the audio disk actually also stores the waveform profiles of each Track. When Projects and their components have been backed up as described in the Projects section above, it will also contain packed Project files.



TRACKS / ALL

These buttons on the Disk Management toolbar select whether only audio Tracks or all files are listed in the next column. On the far right, details for each file are given in columns which can be customised: Click on their headings buttons and select alternatives from the box that appears. The dividers between column buttons can be dragged to change their width.

If you have other SCSI devices attached - such as CD-R drives or tape backup devices - these will also appear in the Disc Management window. Within certain limits, the same basic rules apply for logging, file copying, formatting etc. There is a further discussion below - *Other SCSI Drives*.

NOTE: As with most Windows® applications, multiple selection of files in the list can be done by selecting them while holding the Ctrl or Shift keys.

CHECKING SPACE ON YOUR DISK OR SCSI DEVICE



STORAGE
PROPERTIES

In the tree, select the storage device you want to check and press STORAGE PROPERTIES. A display box will tell you how much space is used, how much is available, and details about the drive's SCSI ID. This command is also available by right-clicking on the device.

You can also use this button to show you the storage properties for the SYSTEM, which will look similar to this:

Storage Properties				
Name	ID	Free Space	Used Space	Time Available
Hippo	0	690.50MB	305.19MB	01:08:14:13.50
Jaz	5	230.19MB	790.69MB	00:22:48:07.51
glenda's backup	2	4436.00MB	42.00MB	07:19:28:26.64
Copy Bin	n/a	n/a	0.00MB	n/a
NB. Time Available calculated at Resolution: 16, Sample rate: 44.1 kHz, stereo				OK

Note that the Time Available is displayed in the format in which you are set to record.

LOGGING AUDIO DISKS

When you run SADiE, it will look at the SCSI devices on the system and log all the files on them. However, if you change disks, or connect to another drive via a network, you will want SADiE to recognise the new disk and log its files. To do this:

1. Select the directory which it is to appear under (e.g. "local" for disks on your machine, "remote" for those on a network).
2. Press LOG DISK. - This command is also available by right-clicking on the directory.
3. In the box that appears, set the SCSI ID indicator to the ID number of the disk or drive unit you want to log.
4. Press the Log Disk button in the box.
5. You will be told when SADiE has logged the disk and its files, which will then be displayed in the Disk Management window.



Advanced Logging

The ADVANCED button on the Log Disk box, offers extra options for logging drives. LUN allows you to set a local unit number if the drive supports one.

SCSi Bus - depending on your hardware you may have more than one SCSI Bus - for instance the Portia video card will use SCSI Bus 2.



Disable WDTR, SDTR - some drives may not be logged by SADiE in the standard way because they don't support certain SCSI commands SADiE uses, and so these can be turned off. Consult your dealer if you are having trouble logging a drive. You can UNLOG a selected disk if you don't want its contents to be accessible to SADiE.

Scan Drives

This function is found by right-mouse clicking on the LOCAL disk branch of the Disk Management window. Selecting this will automatically search every LUN on the system to see if there's a drive there.

NAMING AUDIO DISKS



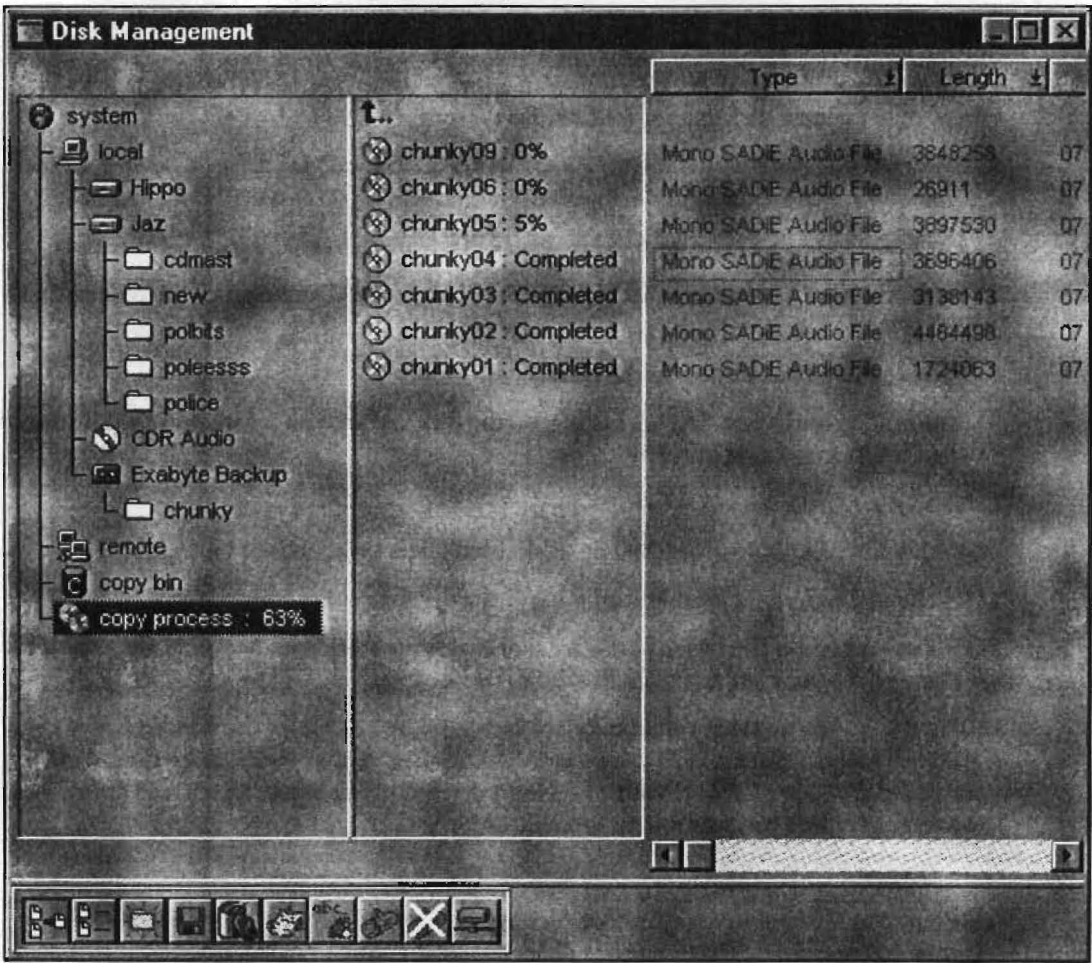
To rename a disk, select it and press this button, or right-click on its current name. If you have removable disks, it is a good idea to give them all different names that can appear on labels to physically identify them when they are removed from your system.

It is inadvisable to rename a drive in the middle of a project. A project uses the disc name for logging audio tracks. If you change the disc name, the tracks will not be found, although you are able to re-import the audio into the Source Tracks Folder. See the *Projects* section of this chapter.

COPYING FILES

You can copy files between disks or folders by simply dragging them across and releasing them over the destination symbol. The copy bin can be used as a temporary store when copying Files from more than one folder. So, drag some files into the copy bin, then click and drag the Copy Bin to where you want the files copied to.

File copying is a background process, so you can do other work in the foreground. You will be informed when the copy is complete. The speed of copying will depend on the demand made on the system by your foreground activities - the copy may actually stop during periods of heavy playback/ record, then continue as and when the processor power returns.



During a Copy process, a new “copy process” branch appears on the left, and clicking on it displays the progress of the copy - which have completed and how far the others have got.

Note that the Copy Bin has its own “Used Space” entry in the System Storage Properties window. This will help you check how much space you need for your copy operation.

RENAMING AND DELETING FILES



Select the File and press these buttons to rename it or delete it from the audio disk entirely. These commands are also available by right-clicking on the file name.

WARNINGS:

Renaming an audio file that is used by a saved EDL will mean that the EDL will not be able to find it when it is next opened. The safest way to rename a Track that is in use is inside the Source Tracks Folder - see above.

You cannot retrieve a deleted file; all EDLs that refer to it will be affected.

If you want to delete all the files on a disk, it is a good idea to format it, as described above..

OTHER SCSI DRIVES

Tape Backup devices are treated as normal disc drives by Disc Manager. You can log, copy to abd from, and format tapes as you would an audio drive. Thus to make a backup to, say, an Exabyte tape, follow the normal copy procedure above - drag and drop files onto the Exabyte drive, or via the Copy Bin. For every drag and drop operation onto the tape, you will have to create a new Directory on the tape - you will be asked to give it a name before the copy starts. Thus multiple sessions on a tape are possible.

Copying *from* a tape is the same procedure - find the files you want in the directory displayed in Disc Manager, and drag it to the copy bin or directly to the destination drive. Because of the directory structure on the tape, the Tape drive will automatically seek and copy the selected files (like a hard disk !)

You will notice that some tape drives are quite slow to react to rewind/fast forward commands, and so may take some time to reach the nth backup on a tape. For this reason, a tape drive (and likewise a CDR) will not be fully logged on initial start-up - the drive is recognised but its contents are unknown until it's formally logged.

Tapes must be **formatted** before they can be used for backup. This is not the case with DDP tapes - it is a very different format, and backup and DDP cannot co-exist. A tape format or a DDP write will completely overwrite the previous contents of the tape.

If you attempt a copy onto an unformatted tape, you will be asked if you wish to format the tape first. Formatting a tape can take a few minutes, depending on the drive type. Ask you dealer about supported tape drives.

CD-R Drives again appear in Disc Manager as a "normal" drive, however, currently, the only function available for a CD-R is drive and disc logging. Currently CD-R drives can only be written to via SADiE's PQ editor.

ARCHIVING

The quickest and most effective method of archiving your audio is to a Tape Backup drive. Transfer time is usually quite a bit faster than real-time and tape costs are reasonable. Consult your dealer about supported drives.

There are essentially two ways of backing up and restoring in SADiE:

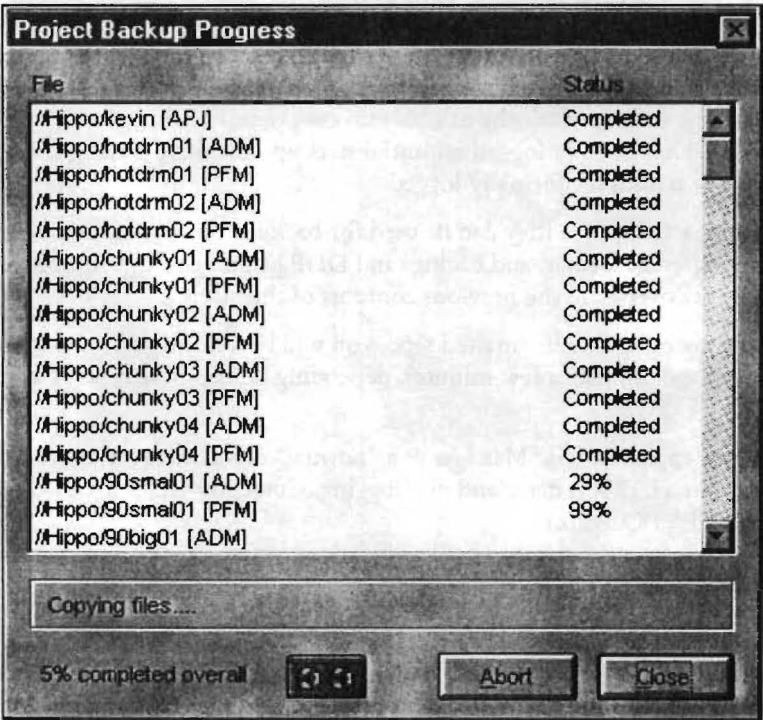
1. Use the **Copy Process** inside Disc Management. This gives you most flexibility - you can drag and drop exactly the files you wish onto the Tape drive. It's possible to copy your files from the PC disk - project components, EDLs etc. - so that they can be backed up alongside the audio - see *Backing up a Project to the Audio disk* under *Projects* above.
2. Using the **Project Backup** and **Restore** functions described below. These are much simpler to operate but hence less flexible.

There is no reason why you can't "mix and match" the 2 methods - perhaps using Project backup to archive the project, but then the normal Copy process to partially restore it.

PROJECT BACKUP

One easy method of backing up to a Tape drive is by using Disc Management's copy process. However SADiE also provides a "one-shot" method of backing up a project, along with its associated audio files.

1. Select **Backup Project** from the Project menu, then select "Total Project Backup to a storage device".
2. The backup tape will be logged, and if necessary you will be offered the chance to format it. You will then be asked for a backup name. This is just the name of the directory on the tape, and so need not be the same as the project name, but it's wise to form a naming procedure for yourself.
3. The Project Backup Progress box will appear:



4. There will be a short pause while the Tape drive prepares itself, then the list of files will be worked through and copied to the tape. Do not be alarmed at the number of "duplicate file names" - each audio file is actually at least 2 separate files - you can see in the diagram the files marked [ADM] are the (larger) audio files, and the [PFM] files are used for displaying the waveform information. Those above are mono, but stereo audio requires 4 files. The first file above - //Hippo/Kevin [APJ] - is the project file - actually this is *all* the project components - EDLs, Mixers, Clipstores - that belong to the project.. Even so, in relation to the audio files this is trivially small.
5. Once the Abort / Close buttons are coloured in black and the backup is proceeding, you can hit CLOSE and allow the backup to carry on in the background, while you play EDLs in the foreground. As with the Copy process, (Project Backup is nothing but a fancy copy process) foreground demand will reduce the speed of the backup.

NOTE: Only tracks tagged YES or ALWAYS will be backed up as part of the project. This will only not be the case if you have run the 'Cleanup project' or 'Tag Source Tracks' functions. See *Cleanup Project* above.

This method can be used to backup the project to any suitable SCSI drive. However the project will have to be correctly restored before all the project component files match the new audio files.

In brief, EDLs and Clipstores look for audio tracks by name and **full** path - for instance the EDL would see a track called 'KEVIN' in a directory called 'FRINTON' on a drive named 'HIPPO' as:

//Hippo/frinton/kevin

If you move the audio track to a new disk or directory, the EDL cannot find it automatically. Thus if you use Project Backup to backup a project to a normal SCSI drive, the EDLs are still looking for files on the original drive, and if you open the project again, with the original disk missing, all entries will be ghosted, even though you know the audio is on the new drive.

The correct way to deal with a Project Backup is to restore it to another drive. This function should not be used to move the audio tracks to another disk.

Note: the Exabyte drive may be busy for a long time after SADiE has apparently finished with it, and you'll find that you may not be able to start another backup or restore for a few minutes.

PROJECT RESTORE

Project Backup provides a "Snapshot" of the current state of a project when it's backed up. Thus Project Restore is designed to return the Project to **exactly the same state** as it was at the time of the backup. If there are any traces of the project, or a project of the same name, on the audio drive to which you are restoring or the path on the PC drive where the EDLs, clipstores, mixers etc. reside - **they will be removed or over-written** by the restore process. Thus if you have continued working on the project and wish only to restore a few tracks - this is not the function for you ! Likewise if the backup is only a partial backup and you don't wish to disturb the existing project, then the only way to restore is by using the Disc Manager Copy function.

To restore a Project that has been archived by Project Backup:

1. Close your current project - you must be outside projects to start a Project Restore.
- 2.. Select **Restore Project** from the Project menu, then "Total Project restoration from a storage device".
3. Then choose from the list of available backed-up Projects.

4. The Project Restore Progress box appears. This is nearly identical to the Backup Progress box above, and reports on the progress of the restore.
5. As with backup, once the Tape drive has started, you can Close the Progress box and continue working in the foreground, pushing the restore to the background.
6. The Project files will be copied to your PC's DOS drive, the Tracks will be copied to your audio disk and you can then open the Project as usual. Note that project component files will be returned to where they came from and if you have changed your working directory since the backup, then you will have to go hunting!

Note: Some Exabyte tapes can take quite some time to log, particularly if they have a number of backup sessions on them.
 You may find that V2 backup tapes will take *even longer* because there is no main tape directory. We have a tape containing many sessions of hundreds of tracks that takes about 1 hour to log! In this case it would be quicker to use V2 to restore this particular tape.

SELECTIVE ARCHIVING

If you are working inside a project, it is possible to mark files that you wish to be included in a Project Backup. If there is audio that you want to be backed up, whether or not the Track is used in open EDLs then right-mouse clicking on the backup field in the Clipstore will change the field to ALWAYS. Tracks marked ALWAYS are unaffected by the Mark Audio for backup function.

You will notice that there is a TAGGED field in the table section of the Source Tracks Folder inside the Clipstore. When "Total Project Backup..." is selected, it is actually only the Tracks marked YES for backup that are copied to the storage device.

In the Source Tracks Folder you can manually change Tracks' tag setting by double clicking on the field to toggle between YES and NO.



TAG SOURCE AUDIO TRACKS on the Project Window toolbar brings up a dialogue box which allows you to:

1. Tag all the used Tracks - this will look through all open EDLs and clipstores in the Project, and mark Tracks used with YES for backup.
2. Tag all of the Audio Tracks - marks every Source Track as YES for backup.
3. Tag all unused Audio Tracks - this is the reverse of 1.above, and would be used for **deleting** unused audio. See *Cleanup project* above

If there is audio that you want to be always backed up, whether or not the Track is used in open EDLs then right-mouse clicking on the backup field in the Clipstore will change the field to ALWAYS. Tracks marked ALWAYS are unaffected by the Mark Audio for backup function.

ARCHIVING NON-PROJECT WORK

If you have work to archive that was not kept in a Project, you can use the copying facilities in Disk Management to copy Tracks to another SCSI storage device. You will then have to copy the EDL, Mixer and Clipstore files to floppy disk, using Windows® File Manager or Windows95 Explorer. Files from the PC disk can also be transferred to a SCSI storage device via the DOS TO SCSI DRIVE FILE TRANSFER command under the FILE menu.

FORMATTING AUDIO DISKS

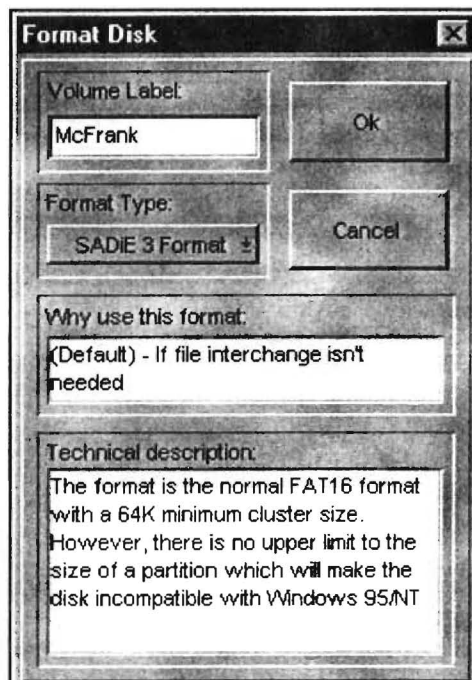
You should format an audio disk:

- When first installing it on your system.
- As a quick way of deleting all the Tracks and other files on it.
- Every now and then, as good practice, since formatting checks and reallocates the sectors on the disk.



Select the disk and press this button, or right-click on the disk name and select "Format". You will be given a warning that **this will permanently erase everything on that disk.**

This dialogue box will appear which allows you to choose from a number of different format types.



You'll notice that this window gives explanations as to why you would want to choose a particular format and a technical description. The majority of these are provided in order to enable you to interchange audio files with other equipment - if you have no need for this facility then you should choose **SADiE 3 Format** (and ignore the rest of this section.)

The available formats (as of SADiE v3.7) are:

SADiE 3 Format (Default)

Use this if file interchange isn't needed

Technical Description - The format is the normal FAT16 format with a 64K minimum cluster size. However, there is no upper limit to the size of a partition which will make the disk incompatible with Windows 95/NT

The *NATIVE* file format is SADiE3.

SADiE 2 Format

Use this if you want to interchange audio with SADiE2

Technical Description - Proprietary format used by SADiE2. The cluster size is fixed at 64k which limits the disk size to 4Gbytes. The SADiE2 software can only use this format and so if you are planning to use your disk with SADiE2 you must use this format. Certain facilities - long track names and project directories in particular - are not available in SADiE 3 with this disk format.

The *NATIVE* file format is SADiE2.

FAT 16 (2G max)

Use this if you want to interchange audio with Windows 95 programs or Lightworks.

Technical Description - DOS FAT16 format. The cluster size is limited to 32kbytes which limits the partition size to 2Gbytes. Multiple partitions are created if the disk is larger than 2Gbytes

The *NATIVE* file format is WAV.

FAT 16 (4G max)

Use this if you want to interchange audio with Windows NT programs

Technical Description - DOS FAT16 format. The cluster size is limited to 64kB which limits the partition size to 4GB. Multiple partitions are created if the disk is larger this. Any partition greater than 2GB in size cannot be accessed by Windows 95

The *NATIVE* file format is WAV.

FAT 16 (MO format)

Use this if you want to interchange audio with the AMS AudioFile using an MO disk

Technical Description - DOS FAT16 format. The cluster size is limited to 32kbytes which limits the partition size to 2Gbytes. The disk contains no partition table which limits the disk size to 2Gbytes.

The *NATIVE* file format is WAV.

MAC HFS

Use this if you want to interchange audio with MAC programs

Technical Description - MAC HFS format. The cluster size is limited to 32kbytes which limits the partition size to 2Gbytes. Multiple partitions are created if the disk is larger than 2Gbytes

The *NATIVE* file format is AIFF.

You can also type a new name label for the disk. When you've chosen the format type, then press "Format" again.

You may notice that some of the available formats have a limit on the partition size. If you are using one of these with a drive that is larger than the limit, the format process may create more than one partition and so in SADiE's disc manager you will see more than one disc with the same name (further partitions will be labelled *Diskname-2*, *Diskname-3* etc.) and this will look like a number of different disc drives to SADiE. Beware that one of the partitions may be quite small - for instance a 4.3GB drive formatted with FAT 16 (2GB) will produce three partitions - two sized 2GB and a little one of only 250MB or so. When this disc is logged by Windows, again it will appear as three separate drive letters.

There are a few restrictions as to which file format can be used on some of these disc formats. For instance you can only record with SADiE2 file format on a SADiE2 disk format (because SADiE2 is the only software program that will recognise this disc and the only file format it understands is SADiE2). See the section on *File Formats* later in this chapter.

The **Native** file format mentioned is the default file format for the respective Disk Format. When you set the file format before recording, you can choose a **Native** option which will automatically make every recording in the appropriate file format for the disc.

The disc format function is only available to system administrators. See *Appendix E - User Management*

FILE FORMATS

AUDIO DISK FORMATS AND FILE FORMATS

I made a comment in the *Formatting Audio Disks* section above and the same applies here - if you are working totally inside SADiE 3 and have no need to interchange audio with other systems, then you should be working with the default settings of SADiE3 format audio files (or 'Native') on a SADiE3 formatted disk, and you will not need to read the rest of this section.

But if are you are taking files from other systems and/or passing audio on to be worked on with another workstation (which is becoming more of a regular occurrence) the read on ...

It's important to recognise the distinction between **Disk Formats** (covered earlier in this chapter under *Formatting Audio Disks*) and **File Formats**. A **system** may require a disk to configured to a particular format so that it can recognise its filing structure, whereas **software programs** will require the data files to be arranged in a certain way in order to read those files. So you may have the right disk format for a system, but unless the file formats are compatible for your software then they may not be readable - and vice versa.

With SADiE we are mostly interested in Audio files, and usually the organisation of the PCM audio data is similar from one file format to another, but the files headers (which will contain other information about the audio - sample rate, sometimes time-code stamps etc.) will differ from format to format.

SADiE can work with a number of Disk Formats (as described above) and can play and record in a number of different types of File Format.

Note: SADiE can handle these different disk and file formats **at the same time** - so it's quite possible to be playing for instance SDII files from a Mac HFS disk, Lightworks and WAV files from a FAT 16 disk and SADiE3 native files from a SADiE3 disc **in the same playlist**. The Playlist makes no distinction between the different file types and you will have mostly the same facilities throughout.
(The only differences being that a) certain disk and file types allow for less characters in the file name and b) some audio file formats treat stereo files differently - for instance with Lightworks a stereo file will always be two mono files, whereas a stereo WAV is one file - although the user will perhaps only notice these differences during file copying and maintenance.)


You choose a file format every time you record, bounce, or use offline processing or PC audio import. To change the selection, pressing the **Properties** button on either the Transport Controls (record pane), Bounce Window, Offline Processing Window, or PC Audio import window, will show the Properties page for the file you are about to record, and you can change the details at this point.

The File format selection offered will depend on the format of the disc you are recording to. When you choose a file format, that will persist until you change to recording to a different disc drive that has a different format, when SADiE will keep using that file format if it's allowed, but otherwise will flip to 'Native' - the chosen default format for that disc format.

When you're recording to multiple disk drives of different disk formats simultaneously (!!) if you choose a format that's incompatible with one of the disk drives you may be told 'File is invalid'. In such a case SADiE software does not allow you to choose a specific file format for each drive - you choose one global file format or 'Native'.

Some settings such as sample rate, will be fixed to the current system sample rate. Bit resolution will default to the system input setting (Audio Setup), but when you change it in the Properties window, this setting will persist until you change the system setting again. Take number is not editable - this is automatically created when you turn on the Auto-Take function and increments a number on the end of the file name.

Some fields in Properties can be edited after the recording has been made - for instance reel name, reel track number, comments and references (if allowed by the specified format), and you can access the properties window by selecting the Track in the Source tracks folder of the clipstore

and pressing . **Source Track details.**

Files can be recorded and played back in SADiE at a number of bit resolutions and sample rates - 16 to 24 bit (32bit floating-point too in the case of SADiE3 format) and 32KHz up to 48KHz plus double (88.2KHz/96KHz) and quadruple (176.4KHz/192KHz) rates.

Some files formats will restrict this, but if you intend to interchange this file you should make sure that the system waiting to accept it can handle these bit or sample rates. For instance you could make a 96KHz 20bit WAV but does the other sound card and/or software support > 16bit and > 48KHz ?

The file formats supported, as of SADiE 3.7 are:

SADiE3	SADiE3's own proprietary format.
WAV	The standard Windows audio format.
AIFF	The standard Macintosh audio format.
AIFC	Another standard Macintosh audio format.
BWF	Broadcast Wave Format - an extensive to the WAV format to include timecode stamping and other references.
FilmWAV	Another extension to the WAV format for Film applications.
Lightworks	The Lightworks Video Editor's audio format.
SDII	A common format in Avid and ProTools systems
IDS	A proprietary format used by IDS systems.
SADiE2	The Proprietary format used by an earlier SADiE version - you can only record in this format onto a SADiE2 format disc, although SADiE2 files can be copied to a SADiE3 disc.

TRACK NAMES

The number of characters you can use for the name of the recording depends on the disk and file format. SADiE uses 8 characters for the file name (on the disc) for SADiE3, SADiE2 and FAT16 discs, and 28 for Mac HFS disks.

However, if you are recording in SADiE3 file format, SADiE uses another layer of organisation that binds files together into **Tracks** and allows a longer name of up to 64 characters for the track. So for instance if you are recording 8 mono tracks simultaneously in SADiE3 file format to a SADiE3 format disk, under a track name of *'Eight men speaking boringly about their lettuces'*, you will produce 1 track (seen in the Source Tracks folder of the Clipstore), but 8 audio files in Disk Manager. You can see which file names relate to the Track, by displaying the **Path** column in the clipstore and double clicking on the red wiggly icon next to the **Tracks'** name. You will see that SADiE has automatically shortened the file names (remember - you're only allowed 8 characters for the file name) to:

```
//DISKNAME/PRJNAME/eightmen
//DISKNAME/PRJNAME/eightm ~ 0
//DISKNAME/PRJNAME/eightm ~ 1
//DISKNAME/PRJNAME/eightm ~ 2
etc.etc.
```

Other file formats will not allow this and so essentially the Track is the same as the File.

When you re-name a SADiE3 Track in the Source Tracks Folder - you are changing just the name of the **Track** and not the individual file names.

RECREATE PROFILES

When tracks are recorded with SADiE, a 'profile' file is recorded at the same time, which is used to display the lower resolution waveform views in the Playlist. These appear in the file listing in Disk Management as *.pfl, *.pfr and *.pfm files, but only when you choose to SHOW ALL FILES. The first, ONLY SHOW TRACKS button (the default view) filters these out, and mostly you won't need to worry about these.

However if files are recorded outside SADiE and have been copied up to SADiE's SCSI disk or have been brought in on a non-SADiE formatted disc, - for instance WAV , AIFF , Lightworks, SDII files etc., then they will not have profiles. (Files imported with **PC Audio Import** are re-recorded and will have profiles already.)

However the first time you import any of these files into the project, SADiE will detect the lack of profile and **automatically** make a profile file for each track. This is often quite quick, however if you import long tracks or lots of smaller ones, then you may see the profile being drawn - if you drag a clip into the playlist, it may not immediately show its profile, but will draw it as you watch.

If you exit SADiE before a profile has finished being created it will delete any partial profiles and start re-creating them the next time you open the project.

It shouldn't be necessary, but if for any reason you wish to make the profile file, then there is a function to start this manually - the option will appear in the menu when you right mouse click on the track in the Source Tracks Folder of the clipstore. You can select a number of clips (using the SHIFT or CTRL modifiers) and 'Recreate Profile' will work on all of them.

Note that profiles are created at the sample rate at which the track is stamped, and so if for any reason the track has picked up the wrong sample rate stamp, then 'Recreate Profile' is not able to change this. The quickest way to rectify an incorrect sample rate stamp is to bounce the whole track at the correct rate.

EDL FILES

If you bring an EDL file into your PC that was created on a different system, when you open it SADiE will automatically detect any of seven different formats and ask you if you want to convert to SADiE version 3 format as you open it.

NOTE: SADiE Version 2 EDLs differed from v3 ones in that they lacked automation data, Stream layout, etc. They can also be converted to v3 format, but you cannot use the old v2 mix files.

Alternatively, the “Convert File” command in the File menu allows you to convert files between any of the recognised formats:

- Press the **SELECT INPUT FILE** button to locate and select the file to be converted and select its file type from the list below.
- Press the **SELECT OUTPUT FILE** button to give the converted file a new file name and locate the folder you want to save it in.
- You can select “From Playlist” to convert the EDL in the active Playlist to another format, and “To Playlist” when converting and importing an EDL to the current Playlist.

COPYING FILES TO AND FROM THE PC

There are two separate methods of transferring Audio between the PC and the SADiE system. You should be aware that SADiE uses a SCSI disk bus that is entirely separate from the PC disk bus, and so there is no possibility of a straightforward disk to disk copy using MS Windows tools.

PC IMPORT AND EXPORT

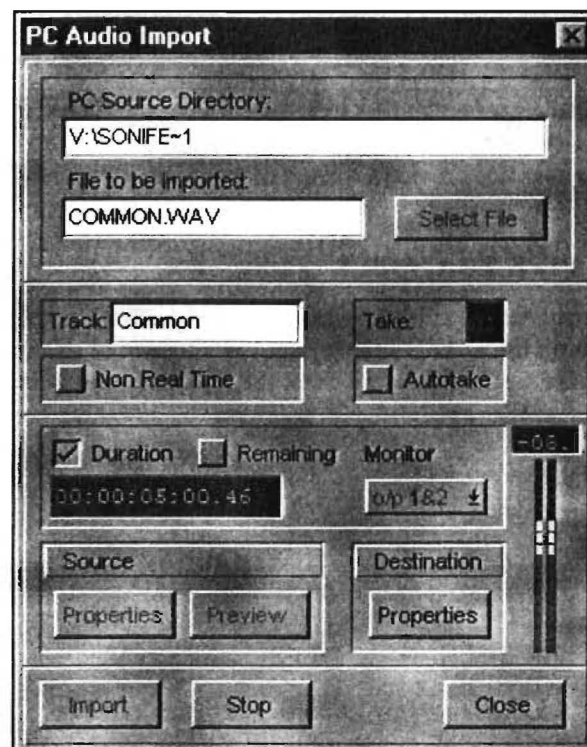
These functions offer more facilities and flexibility. It's possible to audition a file before importing and you can change the file format as part of the import process. These functions effectively re-record the audio as part of the transfer.

FILE COPYING

There are two functions available from the **FILE** menu, that enable you to copy files between the SCSI audio drive and the PC's hard drive (or floppy disc)

These functions are not available for transfers to and from SADiE2 format drives. These are straight file copy operations, and a file retains its original format.

PC AUDIO IMPORT



The PC Audio Import window is called up from the VIEW menu.

This window allows you to transfer a WAV file from the PC disk, auditioning the file through SADiE, and performing a file conversion in the process. Note that, because of the file conversion, this can be used with SADiE2 formatted disks too.

Select the file in the top section. You can then select PREVIEW to listen to it.

SOURCE PROPERTIES gives you details as to the bit rate, sample rate etc. of the PC file

DESTINATION PROPERTIES allows you set the properties for the new file which will be recorded onto the SADiE SCSI drive.

To transfer the file, enter a TRACK name, with all the usual autotake settings, choose non-real-time (for the quickest and most reliable transfer) and press IMPORT.

BOUNCE TO PC DISK

There are some options inside the Bounce Window (See *Chapter 4 Bounce-Down*) to enable you to record files directly onto the PC disk.

If you check **PC disk** as the destination, then the result of the bounce will be a WAV file on the PC disk, rather than on SADiE's own SCSI disk.

Use this to transfer edits as complete WAV files, or simply to convert a SADiE format file to a WAV on the PC disk.

This used in conjunction with MULTI-BOUNCE would enable you to mixdown each entry of the playlist as a separate WAV file on the PC disk.

See Special Bounce Functions in Chapter 4 for more details

Will allow you copy any file except SADiE native audio files to the DOS drive. Selecting this option will give you a box to select the file to copy, and then you be asked where to put it on the DOS drive, and its new file name.

NOTE: If you need your final edited audio files to be in, for instance, WAV format on the DOS drive, then you must record them in WAV format onto the SADiE SCSI drive. This copy function does not provide a format conversion.

DOS TO SCSI DRIVE FILE TRANSFER

Similarly, this offers you a box to select a file on your PC drive, followed by another box asking you where you wish to save it on the SADiE audio drive. You might find this useful if you wish to copy related files - documents, CMX EDLs, etc. from the PC drive onto a removable drive to be used in a different location. At the other end, you will have to copy them back to a DOS drive in order to use them.

8 - SPECIFIC APPLICATIONS

This section aims to do two things:

1. To offer tips for using methods described in detail elsewhere in the manual, where they may be relevant to particular areas of work.
2. Give a detailed description of several SADiE™ facilities that are only relevant to certain applications.

As many techniques can be applied to different circumstances, it's a good idea to read the tips for areas of work other than your own.

SYNCHRONISATION

Whether you are working to picture, running in sync with a multitrack tape machine or recording from a timecode DAT, you will want to lock SADiE to other pieces of equipment.

SADiE can generate timecode and run as a master. You may want to do this to drive a sequencer, running on MTC (Midi Timecode) or to stripe a videotape.

However, most mechanical machines cannot chase timecode. SADiE will not only chase incoming timecode, but can also locate to any point in an EDL instantaneously, so you will usually run SADiE as a slave to the timecode generated by other equipment.

With SADiE slaved to timecode, you can use the transport controls of the master machine and SADiE will run in sync. However, if you add 9-pin control of the master machine, you can also control that machine's transport and locating functions from SADiE.

Timecode carries both current-time and clocking information. For a description of the different types, see *Appendix G - Glossary*.

CONNECTING TIMECODE

SADiE provides a number of different ways of reading timecode to suit the user's requirements.

To synchronise to external equipment you will need to consider both clocking and current time information.

SADiE's audio clock can be synchronised to :

- Digital Audio - via AES, SPDIF or Genlock/AES ref connector
- LTC (Longitudinal TimeCode) - via the LTC In connector
- Video clock - via the Video In connector

Current time can be read via:

- LTC
- 9-pin timecode on the RS422/9-pin port
- VITC - can only be read on Octavia systems.

Here are three suggestions for connecting up SADiE for synchronisation. There are many other combinations but these are the simplest. Explanations appear later in this chapter.

1. LTC method

Connect a cable from the external player's (VTR/DAT/etc.) LTC output to SADiE LTC In. Be careful with respect to feeding balanced connections into unbalanced inputs or vice-versa. Most LTC faults are due to bad cabling.

In Sync Setup choose :

- Frame rate - to suit
- Timecode type - LTC
- Sync mode - Slave Mode
- Slave Mode - Trigger Lock for digital playback or recording, or Chase Lock for analog.
- Under **Autostart & Offset** set autostart to 2 seconds.
- Right-mouse click on the **ONLINE** button and select **LTC sync**
- No need for 9-pin connection or Video

Pressing **ONLINE** and putting the external player into play will start SADiE's EDL playing, following the player's current-time.

2. LTC with 9-pin control

Connect as per the LTC method, and setup Sync Setup the same. Additionally:

- Connect a 9-pin lead between the external player and one of SADiE's 9-pin ports.
- In **9-pin Channels Setup**, enable that 9-pin port for **Sony 9-pin master**.
- Right-mouse click on the **ONLINE** button and select that 9-pin port. The menu will show the machine's name if it recognises it.
- No need for Video cable.

When you press **ONLINE**, the transport controls will now control the external player. Play puts it into play and SADiE will follow. If you double-click on the EDL's time line, the external player will locate to that position before playing, and SADiE will wait for it to locate before starting. SADiE's scrub controls will jog/shuttle the external player and SADiE in sync.

3. 9-pin sync method

This method requires no LTC lead or LTC setup. You will need a 9-pin lead between the external player and SADiE's 9-pin port. Additionally you **must** have connect a video signal to the SADiE hardware's **Video In** to provide clocking sync This could be from the external player (if it is a VTR) or could be a station video sync signal.

In Sync Setup choose :

- Frame rate - to suit
- Timecode type - **9-pin**
- Sync mode - Slave Mode

- Slave Mode - is irrelevant - your audio clock is derived from the signal on the video input OR external digital audio if that's enabled. Note - if your audio clock is referenced to external digital audio, it **must** be in sync with the video reference signal.
- Under Autostart & Offset set autostart to 2 seconds.
- Right-mouse click on the ONLINE button and select select that 9-pin port. The menu will show the machine's name if it recognises it.

Press ONLINE to control the external machine. Operation is identical to method 2 above.

Note: Video lock is like chase and so varies the audio clock to lock onto the video signal and increased jitter may be noticed. If you're recording or playing out digitally whilst locked to video you'll get more solid lock if you set the clock to AES/EBU. Video lock is fine for analogue recording and playback.

SETTING UP SYNC DETAILS

From the View command in the menu bar, display the Setup window and then select the Sync section.

Frame Rate: Select the frame rate you are working to in frames per second:

- | | |
|------------|---|
| 24 | Cine film |
| 25 | EBU - European TV |
| 29.97 | North American TV (Colour) |
| 29.97 drop | North American TV (Frame accurate Colour) |
| 30 | North American TV (Monochrome) |

Timecode Type: Select the type you wish to generate, or slave to.

No Timecode Sync: Incoming timecode is ignored and no timecode is generated. The online button in the Transport Controls, or on the hardware controller will only enable 9-pin control.

Master Mode: SADiE will generate timecode and output it from the relevant socket on the Breakout Panel or **octavia's** rear panel, in one of two ways:

- **Sync to Video** locks the generated timecode to the clock of a video signal connected to the "Video" BNC socket on the panel. N.B. If you set it like this and don't connect a clock source, you won't get any timecode! Used for striping a videotape, with a Station Clock connected to the BNC.
- **Sync to Word Clock** is the normal setting, where the generated timecode is locked to the digital audio clock currently generating SADiE's sample rate. The source of this clock is selected in the Audio section of the Setup window.

- Slave Mode:** SADiE will follow the timecode arriving at the relevant timecode input socket, in one of two ways:
- **Trigger Lock:** After receiving timecode, SADiE starts at a synchronised point and then runs on its current digital audio clock, as described above. After several minutes it is possible that there will be a drift between SADiE and the timecode, unless you have a reliable station clock to which you can Genlock all equipment.
 - **Chase Lock:** SADiE's audio clock follows the incoming timecode so that the sample rate is continuously varied to track it and therefore make slight variations in replay speed.

NOTES: In either slave mode, timecode arriving at SADiE's LTC input is permanently fed through to the LTC output (not regenerated).

In Chase Lock, variations in the replay sample rate from chasing a VTR will mean that the digital audio output is unlikely to be acceptable to other equipment, such as the digital inputs of a DAT recorder. It is generally best to use Trigger Lock for digital transfers and Chase Lock when doing analogue transfers.

Timecode Slave:

- **TimeSync** Turns on SADiE's TimeSync function. At jumps in incoming timecode value - which result when a machine recording field timecode is stopped and restarted - SADiE creates a new Track and automatically relocates to the new value so that EDL Entries are automatically placed at the correct point in the EDL with respect to their timecode. Similarly in playback SADiE will follow the jumps in timecode. See *Synching Rushes* below.

N.B. You need to have Autotake ON in the Transport Controls when using TimeSync.

- **Don't stop after valid TC.** If this is selected, if timecode disappears for longer than the flywheel time, it will be ignored, and SADiE will continue playback

- Double-click on the + sign next to the “Sync” label in the Setup window to display the sub-section “Autostart & Offset”.
- Autostart Time** sets the delay between SADiE detecting incoming timecode and starting playback in Slave mode, so that the current EDL can be compiled. The default value of 2 seconds is adequate for most situations. If you find that SADiE misses the trigger point in complicated EDLs, increase the delay. The display is adjustable in the same way as all other time displays.
- Timecode Offset** sets a fixed difference between SADiE’s EDL time and the incoming timecode in Slave mode and the generated timecode in Master mode.
- Flywheel Length** Frames sets the amount SADiE runs-on after incoming timecode stops.
- Record Stop Time** Sets the time between timecode disappearing and SADiE stopping record while slave to timecode
- Record Timestamp Delay** is the time between SADiE recognising a new timecode and timestamping the track it is recording. When SADiE is recording in sync it will wait until timecode is steady, and then it will timestamp the recording, back calculating the time to the start of the track. You may find that when Timesync is enabled, during timecode breaks SADiE may recognise a number of timecode breaks and perhaps record a number of very short tracks before the timecode stabilises and the real new slate begins. If this happens, try increasing the **Record Timestamp Delay** and SADiE will wait longer after a break before it starts timestamping and creating new tracks.

Note: in earlier versions of the SADiE v3 manual and helpfile, this function has been incorrectly documented and it was suggested that this would add a timecode *offset*. This is not the case.

ENABLING AND DISABLING SYNCHRONISATION

The ONLINE button in the Transport controls or on the hardware controller enables and disables timecode synchronisation (and SONY 9-pin external machine control). Timecode synchronisation is enabled as follows:

Timecode mode	When ONLINE is pressed:-
Master	SADiE will generate timecode when the current-time cursor is moving.
Slave	SADiE will not start until incoming timecode is present, followed by the delay set under “Autostart Time”. The Transport Controls are operating the 9-pin external machine if 9-pin is enabled (except record, which is still working in SADiE’s playlist).
No Timecode Sync	The online button has no effect on synchronisation.

If 9-pin machines are enabled, right-mouse clicking on the ONLINE button shows a menu where you can choose which 9-pin machine to control. If you are using LTC for syncing, there will be an additional option: LTC sync which will stop transport commands being sent to a 9-pin device when ONLINE is pressed.

NOTE: The Transport Controls have to be controlling a Playlist for the ONLINE button to be available, so a Playlist has to be the active window.

MONITORING TIMECODE SYNC

The Sync Monitor window can be displayed from the View menu and gives you a visual indication of the quality of the incoming LTC, MTC or VITC timecode when sync is enabled.

Both the incoming and SADiE's internal timecode values are displayed at the top.

The graph continually redisplay itself and shows the sample rate variation that would have to be applied to chase the incoming timecode. Maximum and minimum variations on the graph in view are shown.

In Trigger Lock, this will indicate potential drift.

In Chase Lock, it will represent the amount SADiE has to chase to keep in sync.

In Chase Lock, the **Sample Rate** display will show the sample rate being varied, and the **Sample Error** will indicate by how much.

The **Timecode Reader Status** indicates whether timecode is being received.

SETTING UP 9-PIN CONTROL

From the View command in the menu bar, display the Setup window and then select the 9-Pin Control. section.

Nine-pin channels There are four channels available on Studio Audio's CAT or Kitten RS 422 interface cards, each represented by one of the four-way break-out leads connected to the card

One channel may be used for a set of hardware controllers. Enable them by selecting that channel to "Hardware Controllers" after they are connected.

The rest are available for control of external machines. For each machine that you connect to a 9-pin channel, select "Sony 9-pin Master".

Double-click on the + sign next to the "9-Pin Control" label in the Setup window to display the sub-section "Machine Control Setup".

Machines Names each machine on a 9-pin channel. The name appears in the list displayed by right-clicking on the Transport Controls' **ONLINE** button, so that you can pre-select which machines SADiE will control when the button is pressed.

Use 9-pin Locate Command & Use SADiE's Locate function. You have the choice between using the machine's own 9-pin locate command, or SADiE's own method which controls the fast forward and shuttling separately. **9-pin locate command** will be more accurate, but in achieving that accuracy, may well take longer to position the tape. Which method you use depends on the 9-pin machine itself and the particular job you are working on. If for instance you are synching daily rushes with short timecode run-ups, it's likely to be more efficient to go for the accuracy of the 9-pin locate, whereas if you are tracklaying and it doesn't really matter where the 9-pin machine starts within a few frames, then choose SADiE's locate function.

Approx, machine FF / RW speed & Allowed locate error. These are the settings for SADiE's **Locate function**. FF/RW speed is the approximate maximum speed the machine reaches in fast forward - this is the speed ratio - 080 for instance means the 9-pin machine moves the tape 80 seconds during every real-time second. Locate error is measured in frames.

Machine Time Selects the source of the timecode that SADiE reads from the external machine connected to the 9-pin socket.

Machine Control Options. Allows you to disable or enable record options over 9-pin. SADiE's Machine Control windows (opened from the **View** menu) allow you to put a remote machine into record, but you may wish, for instance, to disable video record options on a video machine.

USING 9-PIN CONTROL IN SYNC

The **ONLINE** button in the Transport controls or on the hardware controller enables and disables both timecode synchronisation and 9-pin machine control. Right-clicking over the button pre-selects which (if any) machines will be brought online, or allows you to select LTC sync only.

To control and lock to a machine, such as a VTR, you will have set up machine control and be running SADiE as a slave to the timecode from it.

1. Make the Playlist you want to play the active window.
2. Press the **ONLINE** button.
3. Use the transport Controls or hardware controller to play or scrub the audio and picture in sync.

NOTE: SADiE will lock to the VTR's playback position. You can locate the VTR by:

- using SADiE's rewind/fwd buttons or scrubbing.
- going to a stored locator point
- double-clicking in the time bar
- repositioning the current-time cursor and pressing **SHIFT + PLAY** on the hardware controller.

The VTR will not re-locate if you position the current-time cursor and start playback normally.

9-PIN MACHINE CONTROL

You can remotely control a 9-pin machine with its own separate transport controls. This is independent of the playlist, although the two methods can be combined.

Connect and setup the 9-pin channel (see *Setting up 9-pin Control* above). Although Sony 9-pin, or P2 protocol is a 'standard', different machines will implement it in subtly different ways - for instance some machines will have 2 audio channels, some 4, and others more. Some are video machines, but of course DATs have no video channel.

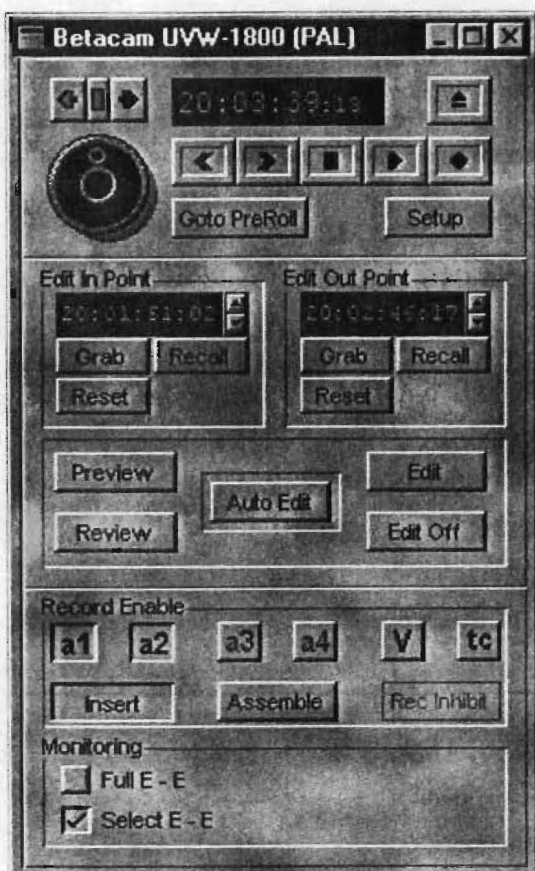
SADiE implements a generic set of 9-pin commands, but it's possible that some machines may not implement these commands in exactly the standard way.

Be sure to check the operation with your machine before working on master tapes - and in particular check that your machine doesn't interpret **INSERT** as **ASSEMBLE** !!

If you have trouble with 9-pin control, consult your dealer with details of the machine; we may be able to provide a custom software driver better suited to your device.

Under the **View** menu, select **Machine Control** and then choose the device you wish to control.

You will see this window:



This gives you control of the Transport and Edit controls for the remote machine, allowing you to put it in and out of record, or play and jog it independantly from the playlist.

The top section is for **9-pin Transport Controls**:

- Time display for the machines current time. This display will say **TAPE** if there's no tape in the machine.; **MACHINE !!!!** if there is nothing connected on the 9-pin channel. If there is a good time display but all buttons are grey, then the machine is probably set to local mode.
- Transport buttons, rewind, fast forward, stop, play, record. The button above 'record' is for tape eject.
- The wheel and nudge buttons above are for scrub and operate in the same way as SADiE's normal transport controls - drag left/right for scrub and up/down for shuttle.
- **Goto Preroll** locates the machine to a pre-roll before the **Edit In Point**.
- **Setup** opens up the 9-pin setup page.

Next is the **Edit** section :

- **Edit In point** and **Edit Out Point** - set the edit points. These have fields for a time - you can double click and type in a new time. Or click on a digit and drag the mouse up or down to increase or decrease that value (as with SADiE's other green time displays). **Grab** copies the 9-pin time from the 9-pin transport controls into the field. **Reset** sets it to nothing. After an edit has been performed, most 9-pin machines reset their edit points - **Recall** will call back the last edit time.

- **Preview** locates the machine to its pre-roll time, into play, then between the edit points the machine will go E-E
- **Auto-Edit** actually performs the edit. It locates the machine to its pre-roll time, into play then punches into record on the enabled channels at the In point and out at the Out point.
- **Review** will locate to the pre-roll time and just play until it reaches the Edit Out point. You would use this after you've performed the edit, to check it.
- **Edit** and **Edit off** put the machine straight in (and out) of edit without using the In and Out points.

Lastly the **Record Enable** section :

- **Rec inhibit** is a warning - the tape is protected.
- **Insert** and **Assemble** choose the record mode. **Assemble** mode can be disabled in 9-pin setup.
- **a1, a2, a3, a4, V, tc** enable the Audio 1,2,3,4, Video and Timecode channels for record.
- **E-E - Full E-E** puts all channels into 'Input Monitor'. **Select E-E**, puts only those channels enabled for record into 'input monitor'.

NOTE: If you have **ONLINE** pressed, and the same machine selected for syncing the playlist, then both transport controls will operate the remote machine.

WORKING WITH SYNC MATERIAL

When working to picture, or other material where sync is important, you will want to:

1. Record audio material that is already in sync When SADiE is locked to the source machine, material you record in will be timestamped with its timecode and positioned correspondingly in the EDL. This also occurs when Autoconforming and when using SADiE's TimeSync feature, both detailed in sections below.
2. "Sync up" material that is not yet in sync - i.e. position it in the EDL so that it is correctly synchronised. This may take the form of syncing film rushes, or tracklaying sound effects etc.

NOTE: It is often most convenient to have two EDLs open for this. You can then have one as your source EDL - with the Entries in their original positions, and the second as your destination EDL into which you paste the Entries (either cut or copied from the first EDL) at their new, "sync-ed-up" positions.

3. Then keep it in sync while you trim, edit and mix it.

MAINTAINING SYNC

Once material is in SADiE,



The **LOCK ALL ENTRIES** button on the Playlist toolbar and the **LOCK** button on the hardware controller stop any Entry from being moved in the EDL, and so stop accidental loss of sync.

Changing an Entry's EDL times in the Text EDL will not alter sync when **LOCK** is on, but it will slip the Entry when **LOCK** is off.

Editing follows all the instructions described in chapter 5. To maintain sync, use Playlist Editing in "EDL mode". When you want to slip an Entry against sync, switch to "SOURCE mode".

Individual Entries can be unlocked and slipped against sync when they are being adjusted in the Trim Editor, before being written back to the EDL.

SYNCING RUSHES

If you are using timecode synchronisation and 9-pin control, the audio takes for film rushes (dailies in the U. S.) can be put in sync in SADiE so that they can be laid back to a telecine videotape.

NON-TIMECODE RUSHES (USING CLAPPERBOARDS)

This is a recommended method; for an alternative, see the section below on Tracklaying, which is a very similar process.

If the takes are loaded into SADiE in order, you can sync them up in the same EDL. If not, it is better to open a second, empty EDL, then one by one cut or copy the entries out of the first and paste them into the second in roughly the right place, and adjust them until they are in sync.

1. Record all the audio into SADiE, separate takes as separate Tracks.
2. Find the audio Entry for the first take and cut or copy it to the paste buffer.
3. With SADiE slaved to, and 9-pin controlling, the telecine VT, scrub the picture to the first clapperboard. SADiE's current-time cursor will now be at the sync point.
4. Paste the Clip for this take into the (second) EDL near the current time (hardware controllers will paste it at the current time).
5. Pre-select HOT and SOURCE mode and turn on Playlist Editing.
 - If you are using a mouse, have the automatic MOUSE EDIT SELECTION OFF - button up, select the Entry and press the PLAYLIST EDITING button.
 - On the hardware controllers, simply press EDIT/SELECT.
6. Adjust the audio, scrubbing it across the current-time cursor to line it up on the audio of the clap.
7. Turn off Playlist Editing. The take is in sync! Repeat for the others.

Lay back the audio from SADiE to the VTR. Run SADiE in Chase Lock for analogue transfers.

NOTE: If you want to lay off an Autoconform DAT at the same time, you can also connect SADiE's digital outputs to a timecode DAT machine locked to the VTR timecode output.. In this case, run SADiE in Trigger Lock.

RUSHES WITH TIMECODE BOARDS

The audio takes will have field timecode with them - we are assuming that this matches the timecode on the boards.

1. Record the audio takes into SADiE, locked to the audio player, with TimeSync ON. - Use Trigger Lock for digital transfers; Chase Lock for analogue. Remember that you must also have Autotake ON in the Transport Controls.

You will then have an EDL Entry for each take, positioned at its field timecode value in the EDL. Each needs to be moved to a new EDL position representing the continuous timecode of the telecine VT. This is best done by opening a second EDL (the New /Playlist command on the File menu) and pasting each Entry into that at the new time.

HINT: If SADiE stops recording at the end of a single take and doesn't go back into record again, it may be because you have **RECORD STOP TIME** in Sync setup set too low. This is time after timecode disappears before SADiE stops recording and thus if it is set to zero the **TIMESYNC** operation will stop on the first timecode break.

2. **LOCK** all Entries in both EDLs. Select Autoplace "Hotspot to Current-time" in the second EDL.
3. Check that the second EDL is active, and...
4. With SADiE slaved to, and 9-pin controlling, the telecine VT, scrub the picture to the first timecode board. SADiE's current-time cursor in the second EDL will now be at the sync point.

Mouse users:

5. Make the first EDL active, pre-select **HOT** and **SOURCE** mode in the Transport Controls, and select the required Entry. Turn **PLAYLIST EDITING ON**, and for safety have the automatic **MOUSE EDIT SELECTION OFF** - button up.
6. Read the time on the board, and enter it into the edit point time display in the Transport Controls. This sets the Entry's Hotspot to the timecode value on the board.
7. **CUT** or **COPY** the Entry, make the second EDL active and paste the Entry into it. Its Hotspot will be positioned at the sync point, and the take is in sync.

HWC users:

5. Make the first EDL active with the **WINDOW** button. Pre-select **HOT** and **EDL** mode and select the required Entry (best to use **PREVIOUS** or **NEXT**). Press **EDIT/SELECT** to turn on Playlist Editing.
6. Adjust the scrubwheel until the time in the **SOURCE** display on the controller matches that on the board. This sets the Entry's Hotspot to the timecode value on the board. Press **EDIT/SELECT** again to confirm the adjustment.
7. **CUT** or **COPY** the Entry. Press **WINDOW** to make the second EDL active and press **PASTE**. The Entry will be positioned with its hotspot at the sync point, and the take is in sync.

Lay back the audio from SADiE to the VTR. Run SADiE in Chase Lock for analogue transfers.

NOTE: If you want to lay off an Autoconform DAT at the same time, you can also connect SADiE's digital outputs to a timecode DAT machine locked to the VTR timecode output.. In this case, run SADiE in Trigger Lock.

AATON OR ARRIFLEX RUSHES

The audio takes from these rushes will have field timecode with them. This timecode is also generated by the camera equipment and conventionally laid onto track 3 of the telecine VT. SADiE's TimeSync feature takes advantage of this to sync the rushes up totally automatically in just two passes of the EDL.

1. Record the audio takes into SADiE, locked to the audio player, with TimeSync ON. - Use Trigger Lock for digital transfers; Chase Lock for analogue. Remember that you must also have Autotake ON in the Transport Controls.

You will then have an EDL Entry for each take, positioned at its field timecode value in the EDL. Because you can now lock SADiE to the field timecode on track 3, these can be positioned in sync as you lay them back to the telecine VT.

- 2. Feed the output of the field timecode on the VTR (usually Track 3) to SADiE's LTC input. Run SADiE in Chase Lock and record SADiE's analogue audio outputs to the VTR.

NOTE: If you want to lay off an Autoconform DAT at the same time, you can also connect SADiE's digital outputs to a timecode DAT machine locked to the VTR timecode output.. In this case, run SADiE in Trigger Lock.

TRACKLAYING

This is only a suggested method - you will probably develop your own. Also read the section above on syncing non-timecode rushes, as that is a very similar process.

The hotspot is a useful marker that you can set at a particular point within any Clip or EDL Entry and then use as the reference when placing it in an EDL. For example, when you place a sound effect of a screech of car tyres followed by a crash, it's probably the crash that you want to position accurately. It is also useful for "back-timing", to get a certain bit of music to coincide with the end of speech, etc.

For each audio Entry (or Clip in the Clipstore) use Playlist Editing or the Trim Editor to set the hotspot at the audible cue (see Chapter 5, *Editing*, and the Clip Details window section of Chapter 4, *Arranging an EDL*).

Then, with 9-pin control of the VTR enabled, use SADiE's scrubwheel to find to the visual cue point.

The current-time cursor is now at the sync point.

If the Entry is already in the Playlist, use the Snap-Hotspot-to-Current-time function (by right-clicking over the Entry in the Playlist) to position the hotspot at the sync point, and so synchronise the Entry.

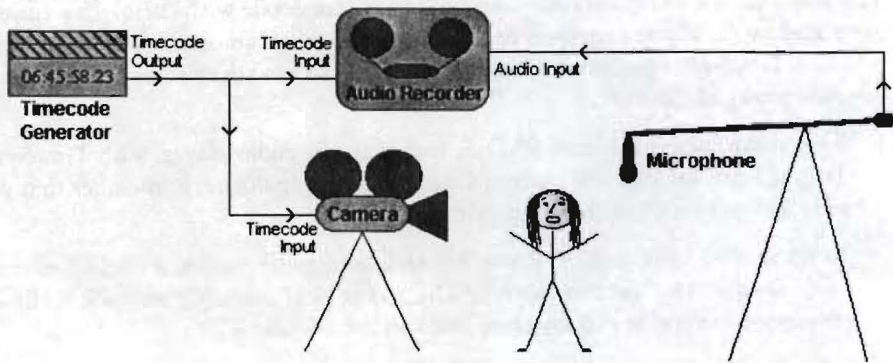
If your Entry is not yet in the Playlist, paste it in using Autoplace set to "Hotspot to current time".

AUTOCONFORMING

OVERVIEW

In the film and television industries, Autoconforming is the process of **automatically** assembling an audio soundtrack so that the audio edits **conform** (correspond) to the picture edits.

A typical location shoot has the following basic elements:



A film camera records the pictures and an audio recorder records the sound. Both also record timecode from a generator, normally supplying time-of-day code. When a roll of film and tape are used up, they are given the same name - usually a reel number - so that pictures and sound can be synchronised later.

With video, both pictures and sound will be recorded together on one recorder, which will also record timecode. These tapes (e.g. Betacam) are labelled with reel numbers.

The pictures are usually edited first. Editors will make edit decisions as they splice or dub together sections from the various source reels, making a final edit reel. These decisions can be given in the form of an Edit Decision List (EDL) file which details the source reel and timecode reference that each section comes from, and the EDL time where it belongs in the final edit. The most common EDL file formats used in the industry are CMX™ type files.

Picture editing systems often only use a low fidelity or mono soundtrack as a guide for the picture editor, so to assemble the final soundtrack the audio is copied from the original source reels.

Autoconforming on SADiE is a deceptively simple process to automatically record and place in sync the audio belonging to the EDL that was produced during picture editing. This EDL is imported into SADiE (usually from a floppy disk). The information is used to record all the required bits of audio from each source reel in turn and assemble a new SADiE EDL with audio Entries placed at their new timecode positions, conforming to the picture edits. The soundtrack in SADiE can then be run in sync with the edited pictures.

SADiE can currently import and use CMX™ 3200, CMX 3600, Sony™ 9000 and Lightworks™ EDLs.

AUTOCONFORM SETUP

To autoconform, SADiE must:

- A. have 9-pin control of the machines(s) you want to record from. See “Setting Up 9-Pin Control” in the Synchronisation section at the beginning of this chapter. You can set up 9-pin control of up to four machines. Note that there is a choice of methods for controlling the way the 9-pin control locates a machine - we suggest “use 9-pin locate” is more accurate for autoconforming.
- B. be synchronised in Slave mode to the machine you are currently recording from. If you are recording digitally, use Trigger Lock; if analogue, use Chase Lock. See the Synchronisation section.

Consequently, SADiE should have both 9-pin (RS422) and LTC (timecode) connections to the source machine.

For each Entry, SADiE can record a bit more audio than has been specified in the picture editor’s EDL. This means that you have pre- and post-handles available so that you can increase crossfades, adjust edits and so on. You may want to change the settings for these in the Autoconform page of the Setup window:

Lead Time Duration	Sets the “pre-handle” recorded at the beginning of each Entry.
Overrun Duration	Sets the “post-handle” recorded at the end of each Entry.
Minimum gap between takes	The gap between items on the source reel that will cause SADiE to record the next one in a new take. At gaps less than this, SADiE will continue recording the next item in the same take and as part of the same Track. A recommended setting is 15-20 seconds.

NOTE: These times are used to make the autoconform list as described in step 7 below, so there will be no effect if you change them in the Setup window after that stage (for example, before continuing with a partly recorded list).
Setting the pre- and post- handles too long may result in SADiE trying to record before the beginning or after the end of the reel!

Additional 9-pin pre-roll The 9-pin locate functions already rolls the 9-pin machine back to a time before the actual locate time. This autoconform setting allows you to increase this pre-roll time to ensure that the whole of the take is recorded. You don't need to have timecode on the source tape in this pre-roll as SADiE rolls the machine backwards frame by frame. Note that this setting has no effect on the record list, and can be changed during the autoconform process.

AUTOCONFORMING IN SADiE

1. Select "import component" from the Project Window. In the next dialogue box, locate the file (a CMX-type EDL file is likely to have been given to you on a floppy disk, if so change the drive box to "a:") and click "OK". If the file has a .txt suffix, in the File Name box type *.txt then hit return to list files.
2. SADiE will detect that you are opening an EDL that is not in SADiE3 format, and the Auto-Convert box will appear. Select the format of the file (if in doubt, try CMX 3600), click "OK" and SADiE will automatically convert it to SADiE3 format and save the new EDL in the project. Double click on the new EDL icon in the Project window to display it in a new Playlist.
3. In the Playlist, the Entries for which audio hasn't been recorded into SADiE yet will be drawn as "ghosts". At this point, if you wish, you may select and delete any of the ghost Entries that you know you don't want to be included in the list to be recorded. You can even cut them with the scissors. In the Text EDL pane, the "Audio Present" column for unrecorded Entries will read "No", and you can edit any parameters shown in black (rather than grey).
4. Display the autoconform list, which is one of the three text panes attached to the Playlist: press the **TEXT PANE** button on the Playlist toolbar and select the **Autoconform** tab at the bottom left. If necessary, adjust the size of the pane by dragging the edges of the Playlist window or the border between the Playlist and the text pane.



The Autoconform toolbar will appear:



This can be floated or attached to the Playlist by right-clicking on it.

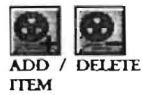


5. Press **MAKE LIST**. SADiE will compile a list of all items that need to be recorded. The name/number of each reel used in the EDL will appear in the column on the left. Selecting each reel with the mouse or the cursor (arrow) keys will display a list of items that need to be recorded from it, detailed in the table on the right.

NOTE: The autoconform list is compiled from all currently open EDLs, so don't accidentally have another EDL open that has any audio missing, or it will be included in the list. The list of items to be recorded will also remain unchanged until you **MAKE LIST** again, even if you close the current EDL and open a new one.

6. You now have the option of editing the list before you record the Entries. Each parameter displayed in black (rather than grey) can be edited by double-clicking it with the mouse. Alternatively, select it using the tab key to move between the reel list and the details table and the cursor keys to move between parameters in the table, then press Enter/Return (↵).

You can:



- Alter the start or end times that came from the Picture Editor's EDL.
- Change whether an item is recorded in mono or stereo. The initial setting will have come from the imported EDL, but can be overridden by selecting the item and pressing the **MAKE MONO/STEREO** button, which changes the "Number of Channels" setting. This is often necessary if the picture editing system has used the audio in mono as a guide, but you want the stereo recording for your soundtrack.
- Change the "First Channel" setting. This indicates which channel(s) of the picture editing system the audio was on, and will correspond to the channels of the source reel unless they were re-allocated during the edit. To relate these to SADiE's inputs, see the description of the Autoconform Recording box in step 7, below.
- Alter the "To Be Recorded" status so that individual items will not be recorded this time. This may be because you want to record certain items at a later date by doing another recording pass. Perhaps you need to take the audio from a different source - for example, using music from the original CD rather than the Betacam reel used during picture editing.
- Manually add or delete items from the list to be recorded. Note that deleting a record item is different from deleting an Entry in the EDL, as several EDL Entries may come from a single item.



7. From the reel list, select the first reel that you want to record from and load it into the source machine. Press the autoconform RECORD button. The Autoconform Recording dialogue box will appear:

Auto Conform Recording

Reel name: 1

Input selection

☒ Use specified inputs

☐ Override inputs

inp 1&2 ±

Output selection

o/p 3&4 ±

Internal Time

00:00:00-00:00:00

Machine Time

01:00:00-00:00:00

Machine selection

Sony channel 43

Status

Loading

Current record item

Start time: 01:00:00-01:00:00

End time: 01:00:00-01:00:00

Number of channels: 01

Start channel: 01

Start

Stop

Close

The input channels used for recording the items can be selected as follows:

- Use specified inputs

This setting uses the channel numbers in the autoconform list to determine which SADiE or **octavia** inputs each item is recorded from. **octavia** users will be able to record all channels simultaneously; SADiE XS/XACT users will have to make separate passes, recording two channels at a time and changing audio connections where necessary.
- Override inputs

Channel numbers in the autoconform list are ignored and all material is recorded from the inputs selected on the adjacent box. This will be necessary if the picture editing system has spread audio across several channels, but you are now recording it all from a stereo machine.
- Output selection

Determines the outputs used to monitor the recording. As autoconform recording is a background process, you can select different outputs from those used by your current foreground mixer and then do something else with another EDL whilst SADiE is busy autoconforming.
- Machine selection

Selects which 9-pin channel will be controlled. If you have more than one source machine, you can switch between them here, but remember to change the LTC connection so that SADiE is receiving timecode from the correct machine.

- 8. Press the **START** button. SADiE will take control of the machine, locating it to the correct place, running in sync, dropping-in to record each Entry, then dropping-out and locating to the next. You will see the “ghost” entries become solid as they are recorded, and the “to be recorded” status of each item in the list will change.

The **CLOSE** button closes the box so that you can do other work in the foreground while SADiE continues recording in the background. Press the **RECORD** button on the Autoconform toolbar to open the box again.

The **STOP** button interrupts the process.

NOTE: As this is a background process, the Autoconform Record box takes the place of the Transport Controls’ **ONLINE** button and Record section, although you will see the Track names appearing there.

- 9. When all the items from the reel have been recorded, every “To Be Recorded” status will have changed to “No”. Close the Record box and repeat from step 7 for each reel in turn.

HINT: If you wish to re-record the take for whatever reason, double click on the “To be Recorded” to change it from “No” to “Yes” and you will at that point be offered the chance to delete the previous recording.

The Tracks that SADiE has recorded (and the EDL Entries) will be named after the reel that they came from, with an autotake number added for each take. If you are recording to a version 3-formatted audio disk, timecode values will be included in the name.

NOTE: If you get half way through the process and decide to call it a night, simply stop recording and close down in the normal way. When you open the EDL again tomorrow, you can continue from step 6 above.

AUTOCONFORMING IN BRIEF

The above list gave all possible options. In practice, most autoconform jobs can be done in the following steps:



- 1. Import the CMX-type EDL into your Project, converting it as it imports.
- 2. Press the **TEXT PANE** button and display the **Autoconform** pane.
- 3. Press the **MAKE LIST** button.
- 4. Select a reel in the list, put it in the source machine and press autoconform **RECORD**.
- 5. Check the details in the Record box and press **START**.
- 6. When all items are recorded, close the box and repeat from step 6 for the next reel.

HINTS AND TIPS

Record Status

SADiE3 employs a new feature to avoid insufficient timecode run-ups causing problems when autoconforming. Recording is started as soon as the source machine starts playing at the required point, regardless of whether it is supplying good timecode. When timecode is stable, it is used to timestamp the recorded Track retrospectively and thus position Entries in sync. This is why the “internal time” display in the Autoconform Record box often briefly starts counting from zero at the beginning of each recording, and flips to the correct time when the timecode is stable, and also why the start times of the Tracks will often be slightly before start times in the autoconform list.

If the ‘internal time’ never changes to be the same as the ‘machine time’, and SADiE continues recording without timestamping, then this suggests that SADiE has not been able to synchronise correctly. SADiE is not receiving timecode for some reason. Perhaps there is no timecode on the tape, or bad code? Check that SADiE’s sync settings are correct and that cables are good. Be particularly careful of balanced to unbalanced LTC cables - if the cold wire is shorted to ground, this is likely to make the timecode unreadable. Bad cables are the single most common reason for this type of failure.

Entries not filling in ?

If you find that some Entries in the Playlist are not becoming solid when they should, or the “To Be Recorded” status of record items is not changing when the item appears to have recorded, check the start times of these Tracks in your Clipstore. If they are later than the start times in the autoconform list, SADiE is missing the very beginning of the item. Increasing the **9-pin Locate Pre-roll** setting in the Setup window should cure this. We recommend at least 3 seconds for most machines.

Find New Track

Find New Track is a command available when right-clicking a “ghost” entry in the Playlist. Ghosts are drawn when there is not sufficient audio in SADiE to play the whole Entry. However, it may be possible to edit the ghost entry leaving one that could be played. Selecting **Find New Track** will then update the Playlist, to show the Entry with audio present in a solid colour. **Find New Track** checks for tracks to satisfy the Reel name and time code range required.

This might be useful if a long record item was not quite recorded in full - perhaps because autoconforming was interrupted just before the end, or the 9-pin locate pre-roll was set so that the very beginning of the item was missed. Make a cut in the Entry, leaving two ghost Entries, the larger of which actually has all the audio present. “Find New Track” for this and it will be drawn solid, recognising that the Track is present. Now, if you make a new autoconform list, you will only have to record enough audio to cover the smaller Entry.

If you load a new CMX-type EDL that relates to audio that already exists - you will find that the **Find New Track** function acts automatically and so will “fill in” entries which are satisfied (reel name and timecode ranges) by existing audio. If the audio is not in the current project you will have to import it before it can match to the EDL.

Cross-referring Autoconform list entries and EDL entries

The autoconform list and the EDL are displaying essentially the same information but ordered differently. There are times when you might want to view or manipulate EDL entries that belong to autoconform list items or perhaps even whole reel.



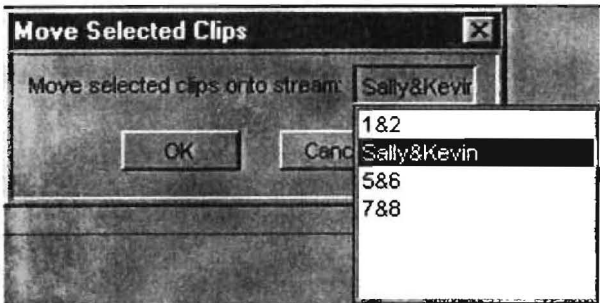
The 'Add EDL entries for item/reel to the selection' buttons on the Autoconform toolbar, searches through the current EDL for entries that come from the selected record item (or whole reel, depending on which button is pushed), and selects them in red. The next function - for instance copy/cut, or more complex operations like 'Move Selected Clips' (see below) will operate on all the red entries.

NOTE: these **add** to the selection - if you only want one item or reel selected in red, then you'll have to click in an empty part of the EDL to clear the selection before you start. Because these add to the selection, you can use the function again and again to select a group of items or a number of reels.

Multi-track edit lists as multiple stereo lists

As the CMX-type is the most commonly recognised format, you maybe presented with a multi-track list that has been split into several stereo lists. Alternatively the channel information may be written in the reel name, as the channel information is restricted to 2 because of the CMX format. And so you may have a list with say, 4 reels referring to channels 1&2, 3&4 etc. When you convert the EDL all entries will be on streams 1&2.

If you use the 'Add EDL entries for reel....' function above, a whole reels-worth of entries will be selected in the EDL. You could then use the 'Move selected clips onto stream..' option in the Playlist menu, to move those clips to a new pair of streams.



Make Stereo / Make Mono



The MAKE MONO/ STEREO buttons, on the autoconform toolbar change the EDL entries to be mono or stereo as well as the record item. Note that there is a MAKE STEREO option on the entry menu that appears when you right-mouse click on an entry. This is only available if stereo audio material is actually available for that entry.

Mono Recordings

If your source material is mono and from a mono tape, the normal 'Override Input channel' setting will still try to record from one side of stereo, depending on which reel channel the record item is from - left for odd number channels, right for even. However in the Autoconform page in Setup, there is an option to **Always record mono items on the left channel** to further override this.

The Autoconform list

The Autoconform list in the table page of the EDL, is saved along with the EDL when you press SAVE EDL.

**MAKE LIST**

The **MAKE LIST** button always makes a completely fresh list, searching through the EDL for any ghosted or missing items and creating a brand new record item list.

However if you have already started the autoconform, you may wish to retain an item in the list even if it has been recorded and it's marked **NO** in the 'To be recorded' field. Or perhaps you've made some edits to the list and not yet recorded these items - **MAKE LIST** will completely re-set this.

**REFRESH LIST**

But you need to add some extra entries from a new EDL ! For this situation there is the **REFRESH LIST** button, which keeps your old edited conform entries intact, but adds in new conform entries for the new clips.

Or alternatively, you are given a completely new edit list that includes some extra entries. When you've converted this new EDL, you may want to continue using your old autoconform list. In this case select **IMPORT CONFORM LIST** from the File menu, and select the old EDL. This will pull in just the autoconform list from the old EDL; you can then **REFRESH LIST** and continue, with any new entries added to the record list.

Note that **IMPORT CONFORM LIST** doesn't merge with any existing conform list, it overwrites it.

SADiE & LIGHTWORKS™ INTEGRATION

The SADiE software can be used to do the audio post-production for a project that has been edited on a Lightworks video editor. There are several levels of integration that will help you complete the job. They are:

Auto conforming from a Lightworks .EDG file.

The ability to read Lightworks audio files.

The ability to write Lightworks audio files.

The ability to pass on your project to an AMS AudioFile.™

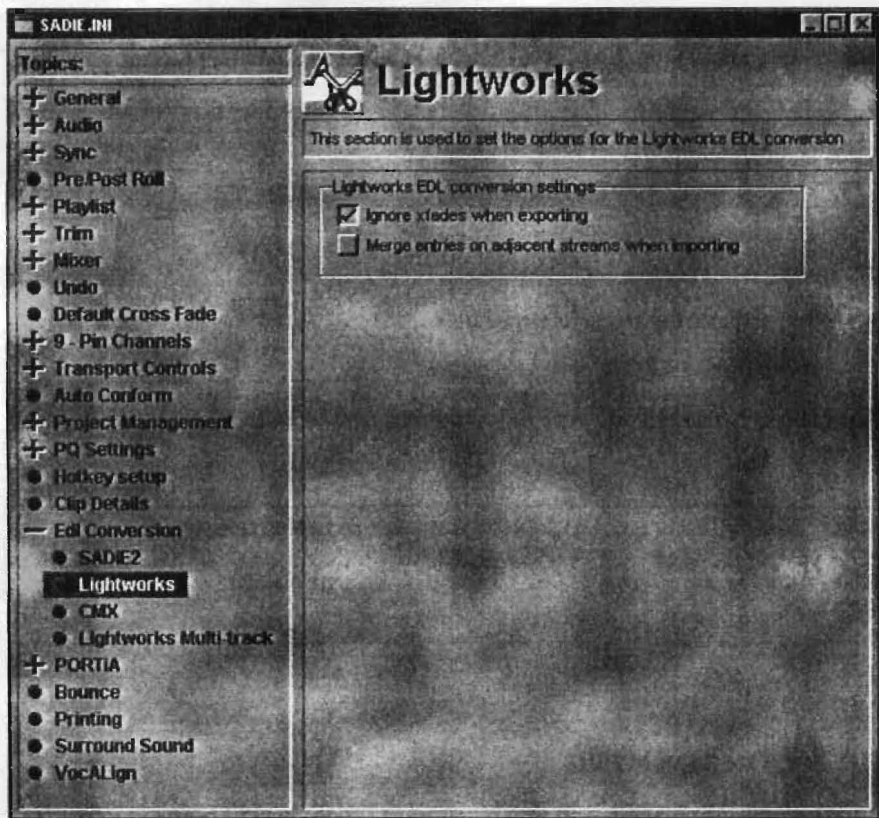
<p>Note: We've included AMS/Neve Audiofile in this section because some Audiofiles are able to read Lightworks projects. The procedure for taking SADiE projects into the Audiofile is very similar that for Lightworks, but be sure to read the specific sections later in this document.</p>



AUTO CONFORMING

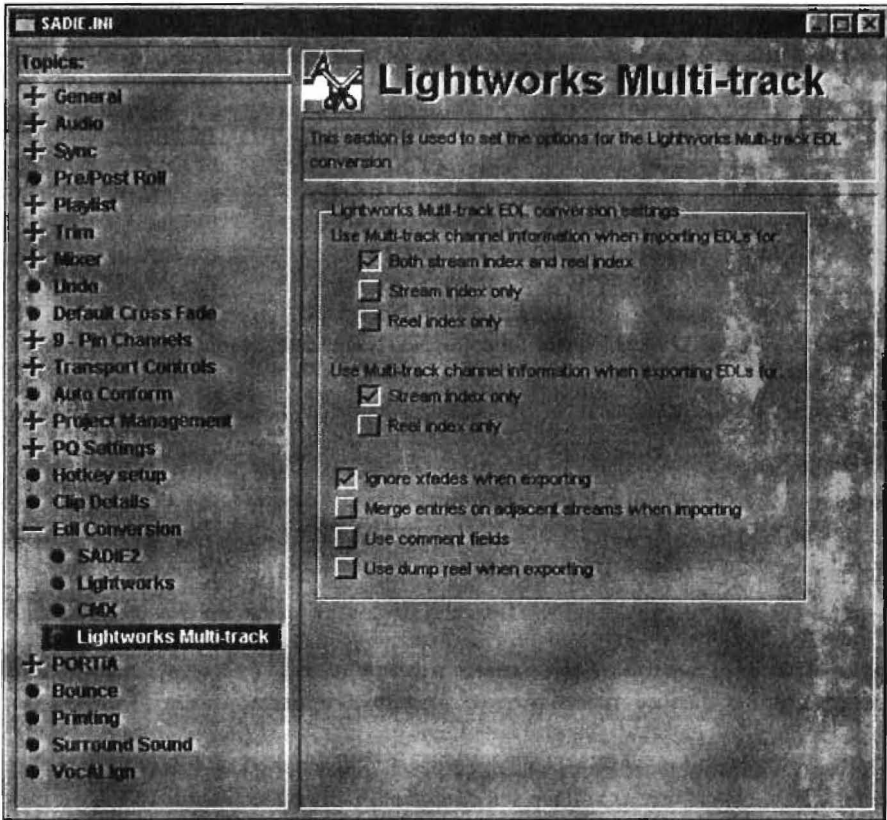
Auto conforming is covered in depth earlier in this chapter. There are, however, a few things that are specific to Lightworks .EDG files and Lightworks Multitrack EDLs. The .EDG file is the edit decision list that a Lightworks video editor produces. (The "G" stands for generic). It is more convenient if it was created omitting any video entries, otherwise the file could be too large to move on a floppy disk.

A Lightworks Multitrack EDL is a variation on a CMX EDL with the ability to give you more than 4 specified tracks.

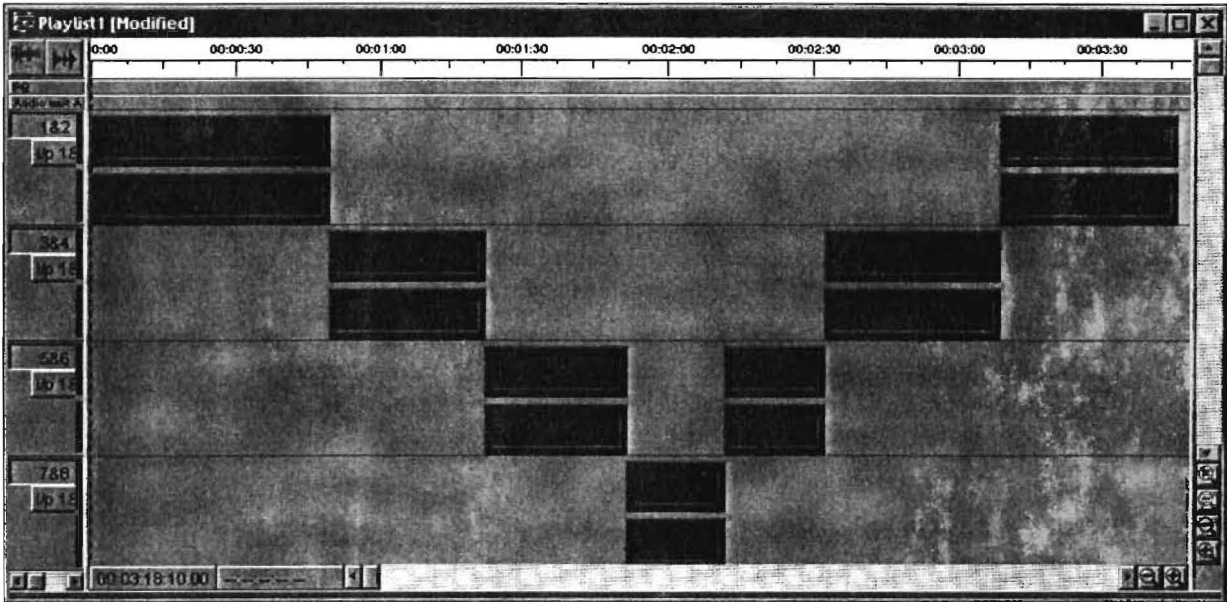
Before you import the file there is one setting in the setup window that affects how it is imported.



Lightworks digitises stereo sound as 2 mono files. If you know that the audio is stereo then you can tell SADiE to “Merge entries on adjacent streams”, making a link between the 2 sides. This will save time later, when editing the audio as the entries will already be stereo rather than 2 side by side mono entries. Of course, you can always  **group** or  **ungroup** the entries individually using the buttons on the playlist toolbar.




The Lightworks Multitrack EDL options also have the ability to use a comment field as an audio mapping facility. This is for import and export. So if you import the following MultiTrack EDL you will end up with the SADiE edl below (or vice versa)



TITLE: LWKS1 FORMAT: Multitrack Audio							
001	N/A	A12	C	00:01:50:09	00:02:39:14	00:00:08:10	00:00:57:15
002	N/A	A34	C	00:02:39:14	00:03:12:21	00:00:57:15	00:01:30:22
COMMENT: AUDIO MAPPING				FROM CH1 TO CH3		FROM CH2 TO CH4	
003	N/A	A56	C	00:03:12:21	00:03:42:07	00:01:30:22	00:02:00:08
COMMENT: AUDIO MAPPING				FROM CH1 TO CH5		FROM CH2 TO CH6	
004	N/A	A78	C	00:03:42:07	00:04:02:03	00:02:00:08	00:02:20:04
COMMENT: AUDIO MAPPING				FROM CH1 TO CH7		FROM CH2 TO CH8	
005	N/A	A56	C	00:04:02:03	00:04:22:15	00:02:20:04	00:02:40:16
COMMENT: AUDIO MAPPING				FROM CH1 TO CH5		FROM CH2 TO CH6	
006	N/A	A34	C	00:04:22:15	00:04:59:02	00:02:40:16	00:03:17:03
COMMENT: AUDIO MAPPING				FROM CH1 TO CH3		FROM CH2 TO CH4	
007	N/A	A12	C	00:04:59:02	00:05:36:08	00:03:17:03	00:03:54:09

To import the .EDG file it is probably best to copy the file from a floppy disk onto the PC's hard drive. Use Windows Explorer to do this, copying it to a directory such as C:\Projects. Once it is copied you should start or open a project.

You need to import the .EDG file into the project. You can do this by pressing the **Import**

 button on the Project window toolbar or by right mouse clicking on the Project window, choose miscellaneous/ import component. Either of these 2 options will bring up a standard Windows dialogue box offering you a list of files to import. Navigate to the correct directory. You may need to select "All Files *.*" from the List Files of Type section, in order to see the .EDG file. Once you have selected the file press the OK button. You may be offered a File Conversion dialogue box. SADiE will offer you some default names and locations for the new .EDL file it is going to create. You can change these if you wish but there should be no need. Press OK and a new .EDL file will be created in the Project Window. Open this .EDL by double clicking on it and proceed as for a normal auto conform job. Once you start auto conforming from tape there is nothing Lightworks specific about the project.

The file conversion process can be made automatic by selecting the "Don't show autoconvert EDL dialogue if SADiE has detected the type" in the EDL Conversion section of the setup window.

READING LIGHTWORKS AUDIO FILES

When the picture editor digitise picture into the Lightworks, she/he may also digitise the correct sound at a quality that is usable for audio post production. The audio must have a DOS extension of .S24 and should have an associated .ED2 file with it. The .ED2 file is a "hidden" text file that Lightworks creates which contains vital naming information about the audio. Stereo or twin track audio has one .ED2 file for each pair of audio files.

If you are happy with the audio that was digitised then you can save yourself an auto conform process and use the sound directly from the Lightworks disks. Alternatively, you may receive a disk that contains a Lightworks Archive or Consolidated project. In any case you will need the .EDG file that is associated with the audio.

The differences between the 3 alternatives are as follows:

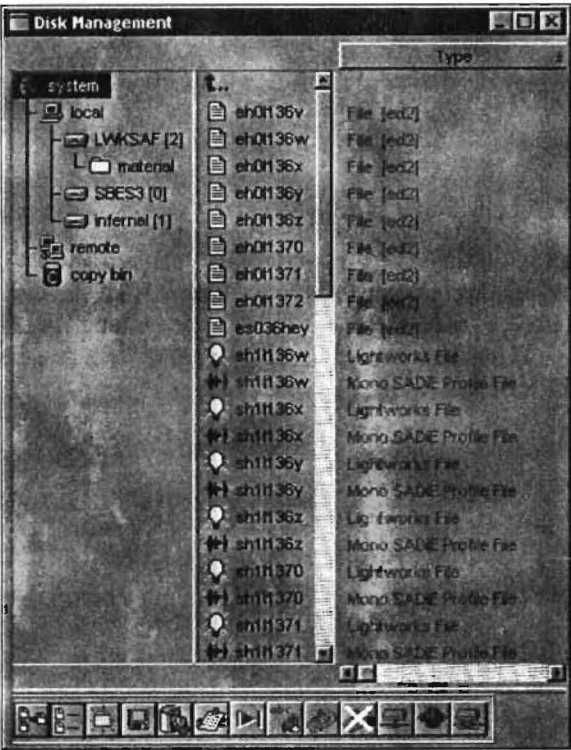
Lightworks Disk: This will be a very large disk with several partitions on it. It will contain a lot of video and audio and may not be the most convenient interchange medium, since the Lightworks editor might still have work in progress that requires the disk. The audio will be in a folder, commonly called "Material" (but we have seen examples called "Sound") in one of the partitions on the disk.


Archived Project: This is a disk that contains all the audio that was recorded for a given project, exactly as it was digitised on the Lightworks. The disk can be any type, but is commonly an MO disk or Iomega Jaz disk.

Consolidated Project: This is a disk that contains all the audio that is referred to in a given Lightworks EDL plus a pre and post handle. The pre and post handle length is determined within the Lightworks system and must be set before the disk is made. Audio that has been digitised but is not in the Lightworks EDL will not be on the disk. The disk can be any type, but is commonly an MO disk or Iomega Jaz disk.


Whichever disk is given to you, you will need to attach it, or the corresponding Jaz or MO drive, to your SADiE system and log it on in disk management. (See Chapter 7 - File Management - Logging Audio Disks) If in doubt over which drives are currently supported or how to connect a drive to your SADiE, please contact your SADiE distributor.

When connected and logged on you will see something similar to this in the SADiE Disk Management window. If the Lightworks disk has partitions on it you will see multiple disks all at the same SCSI ID. Do not worry about this. It is perfectly alright!



Lightworks audio has the lightbulb symbol next to it. If you press the 'Show all Files'  button on the Disk Management toolbar you will also see all the .ED2 files that are on the disk. If everything looks OK you can shut The Disk Management window.

You now need to import the .EDG file into the project in the same way as detailed in the above Auto Conform section.

Once the file is imported, you need to import the audio into the current clipstore. Either press the  **Import Source Tracks** button on the Clipstore toolbar or right mouse click in the clipstore window and select "Import Source Tracks". Navigate to the Lightworks disk and select all the files. These are normally in a folder called "Material" on the disk. Pressing the "Shift" or "Ctrl" button on the keyboard enables you to make multiple selections. As soon as the audio is imported, the ghosted entries in the .EDL should fill in. You are effectively doing an autoconform from disk !

NOTE If some entries fail to fill in, it is either because the audio is not on the disk, or you failed to import all the audio into the clipstore, or you have the wrong Sample Rate of Frame Rate set.
--

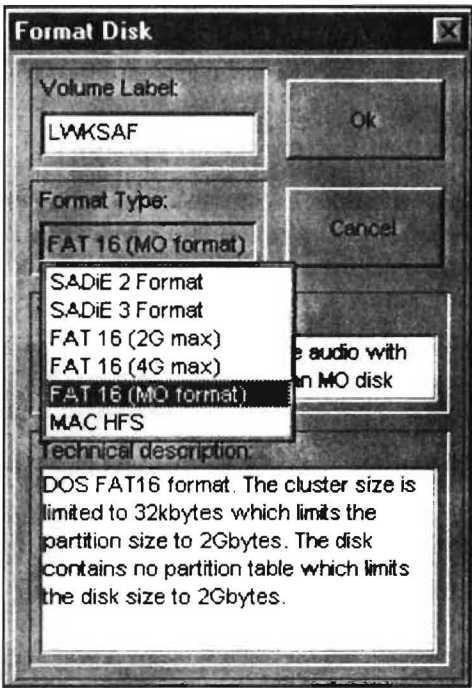
Again, once you have got this far, the job ceases to be Lightworks specific, and just becomes a normal SADiE tracklay or dub, which are covered in other sections of the manual.


Any subsequent recordings you make into this project do not need to be in Lightworks file format, nor do they need to reside on the Lightworks disk that was originally supplied to you. SADiE software can read audio from multiple disks in multiple file formats (such as SADiE3, .WAV, .BWF) all within the same EDL. It should be completely transparent.

However, if you need to give an amended .EDG file and/or extra audio back to the Lightworks or onto an AudioFile then you may need to read the following sections.

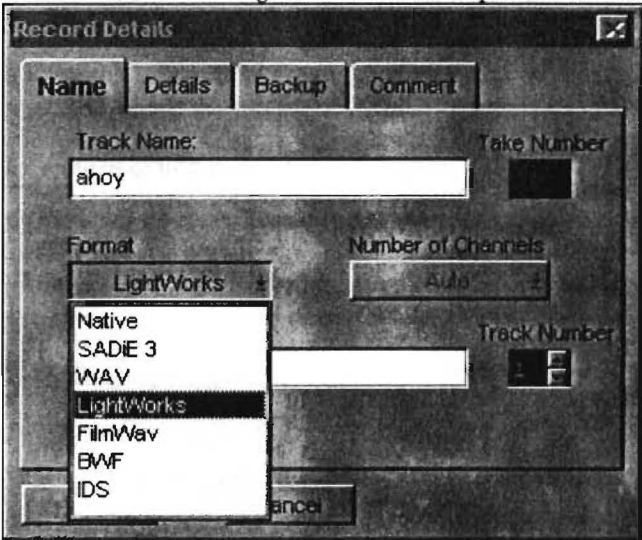
RECORDING LIGHTWORKS FORMAT AUDIO

SADiE can record audio to disk in Lightworks file format. This can reside on a SADiE3 or Lightworks (i.e.DOS) format disk., but in most instances you will want the disk formatted in the FAT16 (MO) format or FAT 16 (2Gb max) format. The MO option limits the disk to having 1 partition and is what a Lightworks machine would use to Format drives. You cannot put Lightworks audio on a SADiE2 format disk.



Before you make any recordings, select the disk you wish to record to by pressing the  Select Audio Disk button in the Project Window toolbar or with a right mouse click in the Project Window, Select Audio Disk.

Next, select the file format you wish to record in. Click the properties button on the Transport Record Tab. Select “Lightworks” from the pull down list.



Now all recordings made into this project will be to a particular disk and in Lightworks file format. Just like on a Lightworks, you can give the recording a long name, up to 256 characters, but the name of the track in Disk Management will be only 8 characters long, based on the following structure:

character 1 - file type (S-sound V-video)

characters 2 & 4 - machine id

character 3 - channel id (differentiates more than one channel per recording)

characters 5-8 - recording id

Again, the file format you record in is dependant only on whether you need to take audio back to the Lightworks or forward to an AudioFile at some stage. If you are bouncing (see Chapter 4- *Arranging an EDL H - Bounce-Down*) the final mix to a continuous stereo track to take back to the Lightworks then this must be in Lightworks format. But the sound fx and wildtracks that you digitised to make up the mix can be in any format you like.

If you did not bounce this final mix to the Lightworks disk, then you can copy it in Disk Management. (See Chapter 7 for further details).

The files that you wish to take back to the Lightworks or forward to an AudioFile should be in the same "Material" directory as the original audio.

Let us assume that you have created a track called "Mix" that you wish to take back to the Lightworks. Once the disk is safely re-attached to the Lightworks system, you need to unarchive the audio. It should appear as 2 files called SS13xxxx and SS23xxx within the archive (where "xxxx" is randomly generated alpha characters), but on some systems it will appear as one file linked by the .ED2 file that went with it. The audio will have a "timecode stamp" that was determined by where it was bounced in the SADiE playlist. Assuming you were tracklaying or dubbing to a picture source that had the correct programme timecode, it should synchronise straight to the picture on the Lightworks.

WORKING WITH AMS/NEVE AUDIOFILE

SADiE software can read and write a variety of audio file formats, within the same EDL if you want. One of the formats is Lightworks, which can also be read by the more recent AudioFiles. This means you can now tracklay and pre-mix on your SADiE and then pass it on to an AudioFile for final dubbing. Of course you could do the dub on the SADiE as well, so why not read the section on mixing and processing first!

Before you start a Lightworks/AudioFile project you must be careful to digitize your material in Lightworks format. This can be set from the "Properties" Button on the Transport Record Tab. Lightworks audio can be at either 44.1kHz or 48kHz sampling rates, but 48kHz seems to be the prevalent rate as far as Lightworks editors are concerned. It will almost certainly be 16bit. (See the section in the Helpfile on Lightworks Integration for further details.)

From SADiE version 3.70.00 onwards, you can interchange audio and EDL data from a SADiE to an AudioFile. If you wish to bring the data the other way we suggest you refer to AMS directly for advice.

LIGHTWORKS MULTI-CHANNEL EDL IMPLEMENTATION

First we need to outline the way the entries will be interpreted in a Lightworks Multi-Channel EDL when importing it into SADiE. The same criteria are used when exporting the SADiE EDL. An option has been given as to whether to use the dump reel or not. The use of the dump reel is explained in later sections.

THE ENTRIES

A Lightworks Multi-Channel EDL consists of audio only. There are several different entries we are likely to find in a SADiE EDL, and this is how they are interpreted in the multi-channel EDL.

Entry Number	Reel Name	Channel	Edit Type	Fade Length	Source Start	Source End	Program Start	Program End
--------------	-----------	---------	-----------	-------------	--------------	------------	---------------	-------------

NO FADES



001	RNM	A1	C		SS	SE	A	B
-----	-----	----	---	--	----	----	---	---

FADE IN



001	RNM	A1	D	B - A	SS	SE	A	C
-----	-----	----	---	-------	----	----	---	---

FADE OUT



001	RNM	A1	C		SS	SE	A	B
001	RNM	A1	D	C - B	SS	SE	B	C

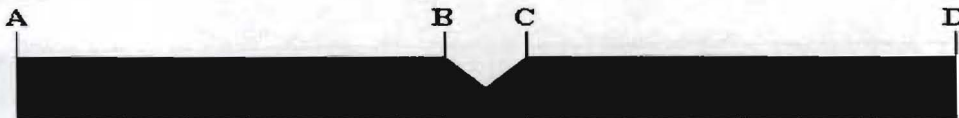
FADE IN AND FADE OUT



001	RNM	A1	D	B - A	SS	SE	A	C
002	RNM	A1	C		SS	SE	C	C

003	RNM	A1	D	D - C	SS	SE	C	D
-----	-----	----	---	-------	----	----	---	---

CROSSFADE



001	RNM	A1	C		SS	SE	A	B
001	RNM	A1	D	C - B	SS	SE	B	D

DUMP REELS

Lightworks systems are not able to export an EDL that contains overlapping entries using the same reel. To get around this problem it uses a dump reel. The dump reel entries are shown in the EDL file with a reel ID of "900". The program times for these entries remain the same, however, the source times used reference a separate file. The extra file should have the same name as the EDL file, but with a ".dmp" extension.

The source times for each stream start at the EDL start time. They usually have a handle of 1 second with entries on the same stream being adjacent. The source times in the EDL file should 'fit' within the program times in the dump file, i.e. there should be enough audio for them to reference. The source times in the dump file are the actual source times of the audio. There should be no dissolve entries in the dump file as this implies that entries overlap and it would therefore require a further dump file to handle it. It is not known at this stage whether the use of a dump file is due to the restriction of the Lightworks exporting or the importing of another machine.

FREQUENT PROBLEMS

Can not find audio - If the audio is definitely on the drive this could be because the wrong frame rate or sample rate settings are being used in SADiE when the EDL is imported. Check that these are set correctly. Also, if the very start of a track is used, it is possible that there is a rounding problem. SADiE uses sample times, whereas the EDL uses frame times. It is possible that the frame time can push the start or end of an entry past the start or end of the available audio.

"900" reel names appear - This is because a dump reel was needed but not found when the EDL was loaded. If there was no warning about this, it is possible that a file match was made, but the dump file either does not contain the correct entries or is empty.

The Audio is only found on streams 1 and 2 - The option for using the channel information for the 'stream index only' needs to be used.

Tracknames ! AudioFile uses a slightly different track-naming structure than Lightworks or SADiE. A "stereo" Lightworks with a reel number of 23 will be seen in the AudioFile Disk Page (name ??) as the following:

File	SADiE/Lightworks	AudioFile
Left Channel	SS13FRED	23 RED/1

Right Channel	SS23FRED	23 RED /2
.ED2 file	ES03FRED	23 RED /0

HARDWARE

Obviously, there are various versions of hardware and software in use so we need to define what has currently been tested. This does not constitute a full list of what will work, but merely what we have seen work, or what is reported to work by other users. Please refer to your SADiE Dealer for more up to date information or download the latest version of software from the SADiE Website (www.sadie.com)

CLASSIC/GREEN SCREEN AUDIOFILE

It is assumed that these machines are so old that nothing will work. If you know better then please tell us !

16 BIT SPECTRA

running 11.27 software (or M Class when running with upgraded TranFIFO card, and possible the Prologic)

These come in 8, 16, or 24 track varieties, with from 1 to 4 disc banks as your wallet will allow. Each disk bank supports 8 channels of audio, so by extension you can see that a 16 track system must have at least 2 banks. We have tested the 16 track variety using 11.27 software (released in 1996?)

There is more recent software (the M series software) of which M2.04 is probably the latest (11/98). This will work on all 16 bit AudioFiles, but is required for the Prolog because that uses an updated disc card that can handle 24 tracks off one SCSI chain.

Iomega Jaz (ADSG, 2Gb or 1Gb variants) or a variety of MO drives seem to be supported. You need to format the drive in SADiE using the FAT16 (MO) option, or use a drive that has been formatted by a Lightworks. There is a limit of 2Gb partition but it will generate multiple partitions on bigger drives. The audio must be present in a folder called "Material" and must be in Lightworks file format.

You need to export the SADiE 3 EDL to a Lightworks Multitrack EDL. Go to the File menu, Convert File and choose the Lightworks Multitrack option in the right hand column, Playlist in the left hand column and choose a name. There are some options in the Setup window for this conversion. Make it on the SADiE C:\ drive then copy, using Windows Explorer to a floppy disk. This will almost certainly need to be a 720Kb low density floppy disk (normally blue in colour). The floppy also needs to be DOS format and the EDL file must end in the extension .EDL.

You need the optional EDL software for your Audiofile

The Lightworks disc needs to be configured as a 'removable' disc when you rebuild the system configurations for the extra disc.

The disc is recognised as a Lightworks disc by the software, and the files present on the disc are displayed as usual in the cues and events page. This seems to include all files, whether they are audio or video (video files may be present if the disk started off in a Lightworks system), profiles and ED2 files (SADiE will generate profiles for the audio and the ED2 file is the textual information for each track)

On a 16-bit machine, the audio cues are only shown in Cues+Events if you have your machine running at the sample rate of the cues. This isn't the case with a 24-bit machine, which sees and plays the cues regardless.

On a 16-bit machine, you need to bank copy the audio off the Lightworks disc to another AudioFile disc in the system. It doesn't support live playout from the Lightworks disc. The 24-bit machines do.

The audio is seen as mono or stereo audio within the AudioFile, as appropriate. The EDL takes with it Source start and stop times, Destination start and stop time and channel number. The timecodes are only frame accurate, whereas SADiE is sample accurate, so some edits may be slightly different. You may need to do some mapping work to get the channels right within the AudioFile.

To deal with the EDL, you need to do the following:

- 1. Insert the floppy disc in the AudioFile drive.
- 2. Go into the EDL page, and into Local Defaults.
- 3. Check your framerate,
- 4. Select MULTITRACK as the EDL type.
- 5. Set your "Minimum Event Size" (probably to the default of 3 frames)
- 6. Set "Match input number" to "Yes"
- 7. Set mode of operation to mono or stereo as appropriate (you may have to go around the loop of stage 2-7 twice to set the mapping for mono then stereo, if the EDL you are importing demands it.
- 8. Exit local defaults, and press List EDL files.
- 9. Select and load the relevant EDL.
- 10. Go back into local defaults, and set up the track mapping as appropriate, like you would do for a normal conform. This should look something like the diagram below for an 8 channel stereo EDL.

Track	Heading ??	Channel
1	A1	1
2	A2	2
1	A3	3
2	A4	4
1	A5	5
2	A6	6
1	A7	7
2	A8	8

- 11. Exit local defaults and hit 'conform audio'.

Fade information and track names are passed on with the EDL and audio (the ED2 file contains the "long name" that you entered), but it would appear that the AudioFile cannot read the information at present. You might need to write a macro to put a fade up and fade down on each piece of audio.

Level information and SADiE DSP processing and automated mixing are not passed on, nor could they be understood if they were passed on.

24 BIT SPECTRA

running S2.01 or S2.03 software (or S class machine)

This is the current top of the range platform. Updated hardware means it is 24 bit capable, although some machines were supplied with 16 bit DAC/ADC cards. It also has the new disc card that can, on a single bank, handle 24 tracks of audio. Most recent software (11/98) is S2.06. We have used S2.01 (released a year ago) and briefly S2.03 and S2.04 for our experiments. There are newer versions of S2.06 appearing.

The first 24 bit machines ran software known as V12. This went up to V12.10, then became known as the S2/M2 series software. V12 software would not run on 16 bit machines, only on 24 bit machines.

Iomega Jaz (ADSG, 2Gb or 1Gb variants) or a variety of MO drives seem to be supported. You need to format the drive in SADiE using either the FAT16 (MO) option or the normal FAT16 option, or use a drive that has been formatted by a Lightworks. There is a limit of 2Gb partition but it will generate multiple partitions on bigger drives. The audio must be present in a folder called "Material" and must be in Lightworks file format.

You need to export the SADiE 3 EDL to a Lightworks Multitrack EDL. Go to the File menu, Convert File and choose the Lightworks Multitrack option in the right hand column, Playlist in the left hand column and choose a name. There are some options in the Setup window for this conversion. Make it on the SADiE C:\ drive then copy, using Windows Explorer to a floppy disk. The floppy needs to be DOS format and the EDL file must end in the extension .EDL.

You need the optional EDL software for your AudioFile.

The Lightworks disc needs to be configured as a 'removable' disc when you rebuild the system configurations for the extra disc.

There is no audio import, like you do with OMF. The disc is recognised as a Lightworks disc by the software, and the files present on the disc are displayed as usual in the cues and events page. This seems to include all files, whether they are audio or video (video files may be present if the disk started off in a Lightworks system), profiles and ED2 files (SADiE will generate profiles for the audio and the ED2 file is the textual information for each track)

On a 16-bit machine, the audio cues are only shown in Cues + Events if you have your machine running at the sample rate of the cues. This isn't the case with a 24-bit machine, which sees and plays the cues regardless.

On a 24-bit system, live playout is supported (There might be an update to the TranFIFO card required, the same as was needed to support live OMF playout, but you should check this with AMS before proceeding). Even if "live playout" isn't supported by your hardware, you can still bank copy the audio as on a 16-bit system.

The audio is seen as mono audio only within the AudioFile. The EDL takes with it Source start and stop times, Destination start and stop time and channel number. The timecodes are only frame accurate, whereas SADiE is sample accurate, so some edits may be slightly different. You may need to do some mapping work to get the channels right within the Audiofile.

To deal with the EDL, you need to do the following:

- 1. Insert the floppy disc in the AudioFile drive.
- 2. Go into the EDL page, and into Local Defaults.
- 3. Check your framerate,
- 4. Select MULTITRACK as the EDL type.
- 5. Set your "Minimum Event Size" (probably to the default of 3 frames)
- 6. Set "Match input number" to "Yes"
- 7. Set mode of operation to mono or stereo as appropriate (you may have to go around the loop of stage 2-7 twice to set the mapping for mono then stereo, if the EDL you are importing demands it.
- 8. Exit local defaults, and press List EDL files.
- 9. Select and load the relevant EDL.
- 10. Go back into local defaults, and set up the track mapping as appropriate, like you would do for a normal conform. This should look something like the diagram below for an 8 channel stereo EDL.

Track	Heading ??	Channel
1	A1	1
2	A2	2
1	A3	3
2	A4	4
1	A5	5
2	A6	6
1	A7	7
2	A8	8

- 11. Exit local defaults and hit 'conform audio'.
- Fade information and track names are passed on with the EDL and audio (the ED2 file contains the "long name" that you entered), but it would appear that the AudioFile cannot read the information at present. You might need to write a macro to put a fade up and fade down on each piece of audio.
- Level information and SADiE DSP processing and automated mixing are not passed on, nor could they be understood if they were passed on.

CD PRE-MASTERING

NOTE: CD players work to a resolution of CD frames. There are 75 CD frames to a second. Earlier PQ editors worked to an NTSC resolution of 30 frames to a second, which was less accurate than the players themselves. SADiE3 works to the full 75 frame resolution.

We recommend you change SADiE's time display format to CD frames in the General section of the Setup window before doing any PQ work. If you don't, you will find that times will jump in steps equivalent to CD frames.

PQ LISTS - OVERVIEW

All CDs have Index points which the player can locate and display timing information about. This lets the user play a particular item, or program the machine to play items in a certain order. PQ flags marking each index are embedded in a CD by the manufacturer.

PQ flags are described by a track number, followed by an index number.

Track 2 Index 1 (written 02.01) is the start of CD track 2.

Further Index points (02.02, 02.03, 02.04... etc.), are occasionally found within tracks. They may be used on Sound Effects discs where several variants of the same effect are given, or on classical disks for movements within a work.

The CD player also needs a PQ flag for the end of each track.

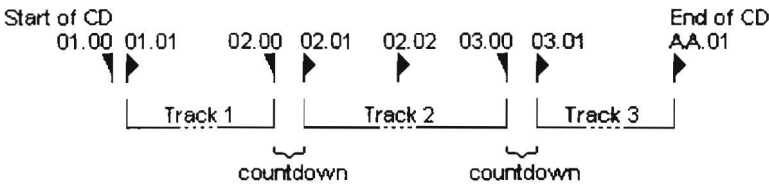
The flag for the end of track 1 is 02.00 ... and so on for other tracks.

The flag for the end of the last track is labelled "AA.01" and is the **End of CD** marker.

There is a special **Start of CD** flag, labelled 01.00. The "Red book" standard specifies that this should be between 2 and 3 second before 01.01 (the start of track 1).

On any CD there can be a maximum of 99 tracks, each with 99 Indexes.

So a CD with only three tracks, where track 2 has an internal Index point, would have the following PQ flags:



The gap between the end of one track and the start of the next is called the countdown (or pause). This will be silence on many CDs, but may be applause or atmosphere on a live recording.

If the countdown has a length of zero (i.e. the 00 index would be coincident with the next 01 index), the 00 index is not written to the CD.

When playing a whole CD in order, a player will start at 01.01 and then play continuously to AA.01.

When playing just track 2 (on its own or as part of a program), a player will play from 02.01 through to 03.00

PQ OFFSETS

You will probably determine the EDL times at which PQ flags are placed with reference to the audio. These times are called **Start Times**, or **User Times**.

CD players vary in their speed and accuracy in locating an index, starting to play, and then fading up the volume. To avoid the possibility of clipping the start or end of tracks and to separate mechanical noise from the music, the start/user times of PQ flags are offset to obtain the **PQ Times**, as follows:

- The Start of CD flag (01.00) and the first track start (01.01) are advanced by the **Start of CD Advance**, typically one second.
- Subsequent track start flags (02.01, 03.01, etc.) and all index flags within tracks are advanced by the **Start of Music Advance**, typically 12 CD frames.
- Track end flags (02.00, 03.00, etc.) are delayed by the **End of Music Delay**, typically 5 CD frames.
- The End of CD flag (AA.01) is delayed by the **End of CD Delay**, typically two seconds.

NOTE: After applying offsets, an 00 index is not allowed to be after the next 01 index, so it is set coincident with it. In this case there will be no countdown and the 00 index is not actually written to the CD. Very short countdowns left after offsets also are commonly removed.

Traditionally, the start of the first audio on a CD master tape is positioned at 00:02:00 (two minutes) with respect to timecode, and therefore at 00:02:00 in SADiE's EDL. The CD doesn't need to have two minute's silence on the front, so the actual **CD Times** are the PQ times with respect to the Start of CD flag (01.00).

SADiE'S PQ EDITOR

You can create a PQ list

- by manually inserting each flag, or
- by letting SADiE automatically generate an entire list based on the in and out points of Entries in the EDL. The flags can then be adjusted manually.

SADiE will display the positions of the flags alongside the EDL Entries and apply all the above offsets for you at the time the PQ list is first created.

To make an EDL with a PQ list you must:

First enable PQ Editing features. This is done with the check button in the "PQ SETTINGS" section of the Setup window.

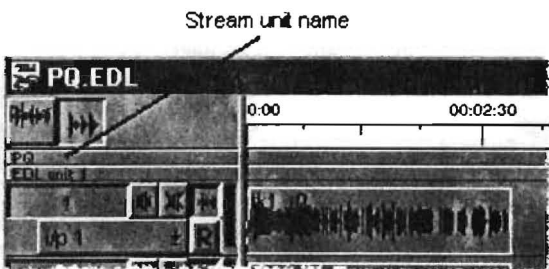
Then create a new EDL, which will have an extra Stream for PQ flags, displayed above Stream 1.

NOTE: If you already have an EDL that was created before you enabled PQ features, and you want to add a PQ list to it: enable PQ, "Select All" Entries under the Edit menu, then cut and paste them into a new EDL.



The PQ list is displayed as one of the three text panes attached to the Playlist. Use the **TEXT PANE** button on the Playlist toolbar and then select PQ from the tabs at the bottom left. If necessary drag the edges of the Playlist window or the border between the Playlist and the text pane.

The PQ toolbar and the Stream displaying PQ flags in the Playlist will also be displayed. This is in a separate unit from the Streams for EDL Entries; double-click on the unit name above the Stream control buttons to open/close it.



This button on the PQ toolbar directly opens the PQ section of the Setup window. There are several setup sub-sections referred to below in capital letters.

GENERATING A PQ LIST AUTOMATICALLY

If your audio material is not already divided into EDL Entries, you can either put razor-cuts at all the track start points first, or choose to insert all flags manually. Manual insertion is covered by the section on editing an automatically generated list.

- 1. Set the offsets (described above) that will be used in the list. These are in the PQ OFFSET setup.

NOTE: The offsets set here are applied to a PQ list from the moment

- (a) a list is automatically created by using the GENERATE PQ LIST button, or
- (b) the first flag is manually inserted.

From then on, they are held in the EDL and changing offset settings will not change the current PQ list, unless you destroy it and create a new one. Therefore be sure that you set them as you want before you do lots of intricate PQ editing!

This is different from SADiE version 2.

The “Normalise” function is described below.

- 2. Set the parameters for calculating PQ flag positions based on your EDL. A 01.01 flag for the start of track 1 will be put at the in-point of the first EDL Entry. After that, SADiE will put track end flags at Entry out-points, and track start flags at Entry in-points subject to the following options in the PQ FLAGS setup:

New tracks will only be flagged
when the previous track has exceeded the **minimum track length**, and
after a gap between EDL Entries longer than the **minimum gap length**.

The **first index 0 length** determines how much before the start of track 1 the Start of CD flag, 01.00, is positioned. Red Book recommendations are between 2 and 3 seconds.

- 3. In the PQ FLAGS setup, you also can set the default emphasis and copy-permit settings for each track that is flagged.
- 4. Press the GENERATE PQ LIST button on the PQ toolbar.



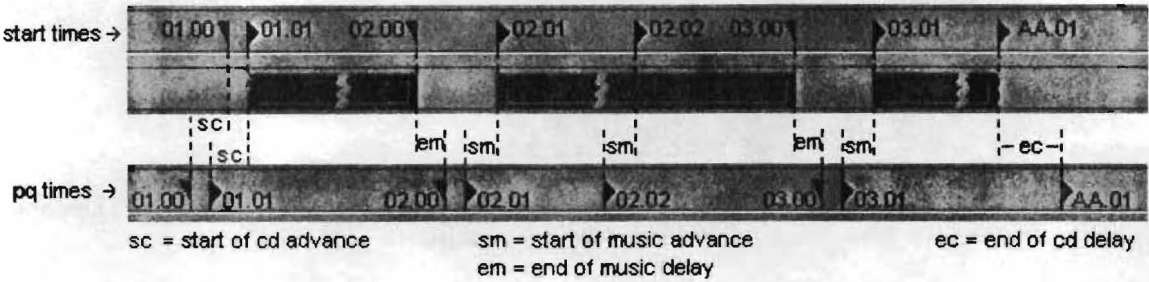
NOTE: A minimum gap length setting of zero will find all edits - even overlaps. The GROUP CLIPS function in the Playlist may be very useful for preventing certain edits from affecting the PQ list creation.

THE PQ LIST DISPLAY

The PQ Stream in the Playlist should now display the PQ flags.



The FLAG DISPLAY MODE button to the left of the PQ Stream selects whether flags are displayed at the **Start times**, which will line up with edit points after auto-generating (button down), or the **PQ times**, which are the positions after the offsets are applied (button up).



The text pane shows the details of the PQ entry at each flag:

On the left hand side, the list is shown in a tree structure, with the whole CD at the top, tracks within it, and flags within tracks. Double-click to open/close items.

On the right-hand side, the details of each PQ entry are shown in columns. The columns can be customised by clicking on their heading buttons, and the width of columns can be changed by dragging the dividers between the heading buttons.

You can click on the flag names in the tree, and the track or Index numbers in the columns to select a PQ entry and locate the current-time cursor in the EDL. The entry's details and the flag in the Playlist will be highlighted in red.

Other columns are:

Track name and **Index name**. These allow you to enter your own names for display purposes, and for printouts. Double-click on the names.

Start time shows the start time (or "user time") of each PQ entry.

Duration shows the length of time between this PQ entry's **start time** and the next.

PQ time - the time of each PQ entry after offsets are applied to the start time.

PQ duration shows the length of time between this PQ entry's **PQ time** and the next.

CD time is the PQ time of each PQ entry with respect to the Start of CD flag (01.00).

Emphasis shows the setting of the emphasis flag for the following CD track: ✓ = emphasis on. Double-click to change the setting.

Copy shows the setting of the copy permission flag for the following CD track: ✓ = copy allowed. Double-click to change the setting.



ISRC is the unique code that you can allocate to each CD track for P.R.S. logging purposes, etc. Double-click to enter the code. You can generate sequential codes for the whole CD by pressing the **GENERATE ISRCs** button on the toolbar. Enter the number for track 1, and the codes for all other tracks will be allocated. The country and owner parts of the code are entered in the PQ FACILITY setup.

PREVIEWING THE PQ ENTRY POINTS

To audibly check the positioning of your PQ entries, the following preview buttons will play the relevant parts of the EDL, with pre-roll and post-roll times set in the Setup window.

The FLAG DISPLAY MODE setting will affect which EDL times the previews apply to.



- Plays up to the selected PQ entry.
- Plays through the selected PQ entry.
- Plays from the selected PQ entry.
- Plays through the countdown for the selected PQ entry.
- Plays from all the track starts for the CD.
- Plays through all the countdowns for the CD, so checking all track starts and ends.

EDITING/ MANUALLY CREATING A PQ LIST

NOTE: If you are creating an entire PQ list manually, use the Setup window to set the PQ offsets to be applied to the list before you insert the first flag. From then on, they are held in the EDL and changing the settings will not change the current PQ list

The PQ DISPLAY setup has a button to enable the use of a mouse for PQ Editing in the Playlist. Some users may prefer to disable this to avoid accidentally moving flags with the mouse.

Inserting PQ entries using the mouse in the Playlist



The PQ INSERT MODE button pre-selects whether the PQ entry you insert will be

(button up): an index within the current track or

(button down): a track start.

Position the mouse at the desired EDL time in the PQ Stream. The mouse pointer will turn to a flag and the mouse time display will show the time you are pointing to. Click to insert the PQ entry. Subsequent entries will be renumbered.

NOTE: If you are inserting a track start, a track end flag will also be inserted before it. The default countdown duration between these two is set in the PQ FLAGS setup.

The default emphasis and copy permit settings for new track flags are also set here.

Inserting and Removing PQ entries in the PQ Text List

Use the following buttons in the PQ toolbar to:



- Add a track start (with track end and default countdown) at the current-time. This is for accurately positioning flags at a point found by audible scrubbing of the Playlist.
- Add an index flag at the current-time.
- Delete the selected PQ entry.

Moving PQ entries using the mouse in the Playlist

Position the mouse pointer over the flag you want to move. The flag symbol will change to a hand. You can then either:

- Drag the flag to a new location, or
- Right-click and Snap the PQ flag to current-time. (Useful after scrubbing the audio.)



SLIP
INDEXES

The SLIP INDEXES button will cause all PQ entries to the right of the one you move or delete to move with it.

NOTE: Take note of whether you are viewing **Start time** or **PQ time**, as selected by the **FLAG DISPLAY MODE** button.

Editing PQ entry details in the PQ text list



You can double-click on any of the time values in the PQ list, and edit them like other time displays in SADiE. The PQ entry will move accordingly and the SLIP INDEXES button will determine whether all following PQ entries move.

Double-clicking also allows you to change each track's emphasis and copy permit settings and ISRC code.



NORMALISE

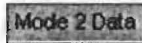
The NORMALISE button will reduce to zero all countdowns less than the value set as the **minimum index 0 length** in PQ OFFSETS.

NOTE: This is done by moving the track end (index 0) flag up to the following track start flag. The PQ and CD times for the track end flag will not be displayed as it is not actually written to the CD when it has zero duration.



EDIT
HEADINGS

The EDIT HEADINGS button lets you enter CD details for the printout and manufacturer.



The **MODE 2 DATA** text box above the PQ list tree represents the CD's bar code. Double click to enter the code.

TIPS: If the audio for your CD is all one EDL Entry, and you don't want to remove noise or atmosphere between tracks, either:

1. Put single razor-cuts at each track start point and auto-generate the PQ list with minimum gap length set to zero. Or:
2. Manually insert each track start flag after scrubbing the Playlist to locate the point; use the ADD TRACK button, or paste the flag in with the mouse; then snap it to the cursor.

You can then move the track end flags back, if you want to create countdowns.

PRINTING OUT THE PQ LIST



PRINT PQ

PRINT PQ uses the Windows® application Notepad to print the PQ list directly to your printer. Offsets used, CD details entered in the "Edit Headings" box and Facility details entered in the PQ FACILITY setup are included in the printout.



PRINT PQ
TO FILE

PRINT PQ TO FILE saves the PQ list as a text file which you can later open and edit in any text editor or word processor.

MAKING A MASTER TAPE/CDR

SADiE will write your finished PQ list and the audio to the following equipment:-

- SCSI Exabyte tape drives, using the DDP format
- SCSI CDRs
- Any timecode-synchronised recorder, using a PQ burst (commonly SONY 1630/U-matic). Synchronisation is covered earlier in this chapter.

NOTE: Consult Studio Audio to check on currently supported SCSI devices
See the Audio Disk section in chapter 7 if you need to log-on a SCSI device.

See the notes at the end of this *CD Pre-Mastering* section for a further discussion on writing discs or tapes at speed, or in real-time.



Press the **READ/WRITE PQ DATA** button.

In the box that appears, select your pre-mastering device:-

DDP to tape Press the **WRITE** button to create a DDP master. The SCSI Exabyte tape drive will locate itself and the PQ data and audio will be written to it.

If you select **NON-REAL TIME**, this will be done as fast as possible, but you will not hear the audio.

A message will tell you when the operation has been completed.

A Clip named "CD Audio Image" will appear in the Source Audio Tracks folder of your Clipstore.

NOTE: There are some choices with regard to the format of the DDP tape. :

- 1) You can choose DDP version 1.00 or 2.00 - this is chosen in the Setup window, under PQ Settings ; DDP Details
- 2) with either version of DDP, you can choose to put the DDP files before or after the audio file - there is a tick box in the Read/Write PQ data - 'DDP at end of tape' for this. The advantage of putting the DDP files at the end of the tape is that they can be replaced at a later date - perhaps you need to add ISRC codes - and this can be done by pressing 'Overwrite DDP at tape end' (but only if the DDP files ARE at the tape end). It is recommended that you check with your manufacturing plant that they will accept DDP v2.00 and/or DDP at the end of tape, as these are non-standard.

- CDR

Press the **WRITE** button to create a Red book CD, complete with Table of Contents.

Set the **CDR Speed**. The speed that SADiE can write to the CDR will depend on the complexity of your EDL. Experience will teach you how fast you can go. If you're not sure, try...

CDR Test Mode. This writes the CD with the laser on low power, so that the disc is not actually burnt. It effectively checks whether the whole EDL can be written to your CDR machine at the selected speed, without spoiling the disc.

You will not hear the audio while the CDR is being written unless you deselect **NON-REAL TIME** which uses a different method to write the CD - see *Notes on Real-Time and Non-Real-Time Mastering* below.

A message will tell you when the operation has been completed.

A Clip named "CD Audio Image" will appear in the Source Audio Tracks folder of your Clipstore.
- PQ Burst

Press the **WRITE** button at the moment you want to send the PQ burst to the tape, then run the machine with SADiE in sync and record the audio. The outputs used and level of the burst can be set in the **PQ BURST** setup. -14dB is normal.

NOTE: It is advisable to lock SADiE's digital audio clock to that of the 1630: Connect the 1630's digital output to SADiE's digital input and select that input as the clock source in the "Further Audio settings" of the Setup window. Then run SADiE as the slave, in trigger lock, synchronised to timecode from the U-matic.

VERIFYING A MASTER



Press the **READ/WRITE PQ DATA** button and select your pre-mastering device.

- DDP tape

Press **VERIFY** and the PQ data on the DDP tape will be checked against the current PQ list in SADiE. You then have an option to **VERIFY AUDIO INTEGRITY**. This will produce a text file detailing the audio error correction rate on the master. In "PQ Settings" in the Setup Window, you can choose how detailed this text file will be.

NOTE: Exabyte is a fully error-correcting data medium. It checks all data as it writes, and re-writes if necessary. Unlike the error correction on a CD, a high error count will not affect audio quality, but at worst could slow the transfer rate to a point where data transfer cannot be done in real time.

- CDR

CDR's cannot be verified.
- PQ Burst

Press **VERIFY** , then play the PQ burst from the tape. Set the input you are sending the burst to in the **PQ BURST** setup. The PQ data will be checked against the current PQ list in SADiE.

READING PQ DATA AND AUDIO FROM A MASTER

If you have been given a master that needs further editing, you will want to load both the audio and PQ data into SADiE:

N.B. First create a new EDL, because the PQ data you are about to read will be attached to whatever is the current EDL.



READ/WRIT
E PQ DATA

Press the READ/WRITE PQ DATA button and select your pre-mastering device.

DDP/CDR Press READ. The PQ data from the tape or CD will be read into the current EDL and appear in the PQ list. A CD Audio Image clip will appear in the clipstore, which can be dragged to the playlist for playback or bouncing to audio drive.

PQ Burst Press READ. Then play the PQ burst from the tape to the input you have selected in the PQ BURST setup. The PQ data from the tape will be loaded into the current EDL's PQ list. Record audio from the 1630 in the usual way.

NOTE: You will be loading **PQ times** into from the master the PQ list. SADiE will apply the currently set offset values in reverse to derive **start times**. If these are different from the offsets used to generate the PQ list originally, you will find that the start times do not line up exactly with the audio.

You will probably just work on the PQ times directly, but if this bothers you, either:

1. Adjust all flags' start times, and let SADiE produce PQ times according to your offsets.
2. Work out what the original offsets must have been, set them in the PQ OFFSETS setup, then read the PQ data again.

When you read a PQ list in off DDP tape or CD, the times on the medium are calculated from 00:00:00, whereas it's possible that when it was originally edited, you may have had an offset in the EDL and the CD started for instance at 00:02:00. It is usually more convenient to not start at zero. This would be where the PQ print-out was timed from also.

The **EDL PQ LIST OFFSET** setup option allows you to choose the position in the EDL of Track 1 ID 0 when PQ data is read from a CD-R or DDP tape.

REPLAYING CDRs OR DDP TAPES

A Clip named "CD Audio Image" will appear in the Source Audio Tracks folder of your Clipstore. after writing a CDR or DDP master, or reading the PQ list from one. As the Exabyte or CDR is a SCSI device, its audio can be treated just like a SADiE Track on an audio disk - the only limitation is the speed of the device.

Paste this Clip into a Playlist, and it will automatically place itself at the correct PQ time, with PQ flags displayed. You can then play the Playlist, and preview or locate to the PQ flags. SADiE will play the audio directly from the DDP or CDR. With Exabyte, it is even possible to scrub the audio forwards, to a certain degree!

NOTE: You can copy individual tracks from the master to your audio disk using the **Bounce** function.

SAVING DDP PQ DATA

The current PQ list in DDP format (without the audio) can be saved like any file and read back into SADiE's PQ editor for later modification. The new version can then be saved to floppy disk and sent to the factory separately from the master tape. This is sometimes done when a detail such as the ISRC codes gets added at a later date.



Press the **READ/WRITE PQ DATA** button and select **DDP to Hard Disk**:-

- **WRITE** will save the file (to the DOS drive or the floppy drive),
- **VERIFY** will compare the saved file with the current PQ list,
- **READ** will re-load a saved file to the PQ editor.

NOTES ON REAL-TIME AND NON-REAL-TIME MASTERING

NON-REAL-TIME CD MASTERING

Usually you will probably want to write the CD-Master to either DDP or to CD-R as quickly as possible, and SADiE is able to make the master quicker than single playback speed. How fast it will go depends on the complexity of your EDL and the hardware you are using. This is called 'non-real-time', which you may be familiar with from other areas of the program. The master will proceed at a speed regulated by the hardware (which in practise may stop and start and perhaps change speed to accommodate different levels of complexity throughout the EDL) but you will not be able to hear the audio as it transfers to the master. Because there is no audio playback, you will not be able to use any external processing during the write, however of course you can get round this by re-recording to include the processing before the final writing process.

The speed of writing will vary for different hardware platforms and CD/DDP writers, but here are some rules of thumb:

Non-real-time DDP to Exabyte

The Exabyte drive works at a number of different speeds and is able to stop and start and change the speed while it's writing a master. You don't have to consider speed - the drive will run as fast as it can, and SADiE will slow it down if necessary.

Non-real-time CD-R

This is much more complex for the user to work out. CD writers have fixed speeds - 1X, 2X 4X and 8X are relatively common, however this speed setting is fixed when you press **WRITE**, and if SADiE is not able to feed the audio data to the CD-R drive at this speed, then the CD-R will run out of data and the write process will stop. CD-R's are usual write-once and so you will have spoiled a disc. SADiE will recommend a conservative write speed before you start the burn, however, if you're feeling confident, you can over-ride this. The speed that SADiE can deliver data at can be worked out approximately, based on the number of streams playing back (don't forget to allow for the two tracks you're recording to the CD-R and bear in mind that 4 tracks playing at 2X speed is the same as 8 tracks playing at normal real-time speed), however if you are using plug-in processing within SADiE, these figures will be changed radically. Note also that bit-rate will seriously effect possible write speed because more data is being transferred.

In practise, you will get a feel for what's possible with your hardware. You can perform Test Writes by clicking on the 'CD-R Test Mode' button in the **READ and WRITE PQ DATA** window, before pressing **Write**. This sets the CD-R to a special low power laser mode and the CD-R will go through all the motions of writing the disc without actually burning anything onto the disc. And so if the test write completes you will know that a real write is possible.

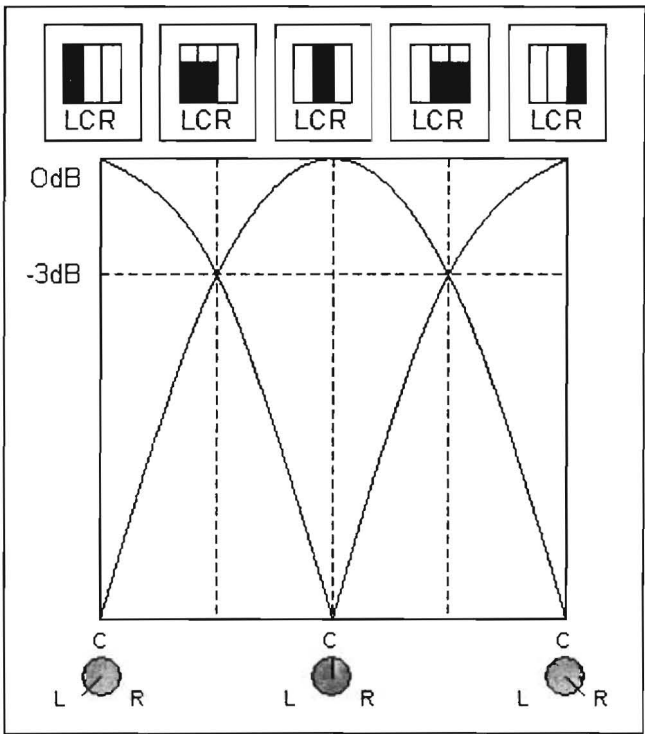
Note: after running a CD-R in test mode, you should re-power the CD-R device to set the laser back to its correct level.

You should be aware that 1X CD-R speed is NOT real-time - if you are set to write non-real-time and 1X you will not hear audio being played back.

REAL-TIME CD MASTERING

DIVERGENCE

Divergence is an important aspect of panning, and control of it becomes a significant issue when working with pan controls that operate on 3 (or more) channels. Consider the following example that illustrates the most basic panning characteristics of a 3 way panner used to control LCR stereo:



Panner characteristics when divergence is set to 100%. (The default)

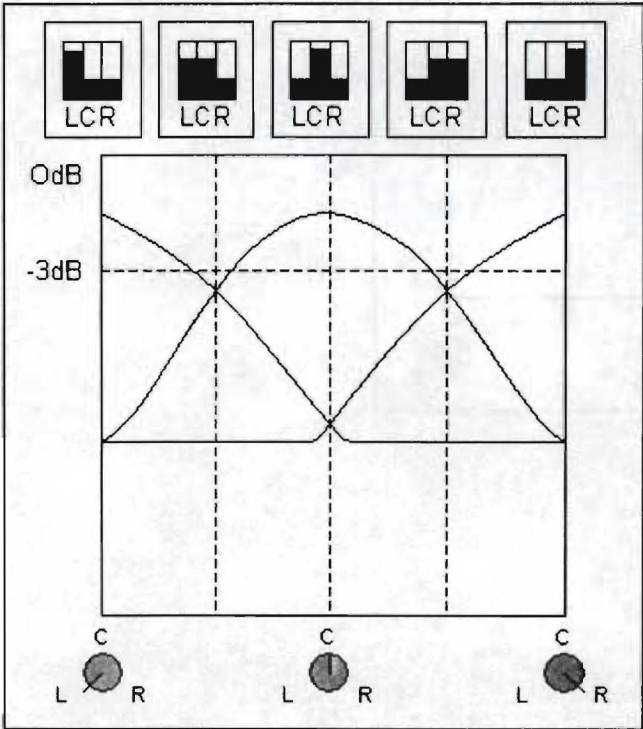
As you can see from the diagram, when the panner is hard left, dead centre or hard right, only the corresponding channel carries any signal. This movement of the signal from channel to channel is known as divergence. In this particular case the panner is said to have *full* divergence, because at no point during the complete pan does the signal ever appear on more than two channels at once.

In SADiE all surround strips are created with *full* (maximum) divergence by default, and in many cases the resulting behaviour of the pan control may be perfectly acceptable. However, consider the following situation.

Imagine you're mixing to picture and there is a particular sequence where a car drives from left to right across the entire scene. Obviously, a left to right pan of the sound of the car's engine is required to provide a convincing effect. But will a complete left to right pan with a fully divergent panner produce a convincing result, and perhaps more importantly, will it produce an effect that is acceptable to most (if not all) of the audience?

In reality, the pan will fail on both counts. Due to the fact that the sound moves completely in and out of each speaker in turn, the pan will appear to 'jump' from speaker to speaker. This effect becomes more noticeable as the speed of the pan is increased. It will also fail to produce a consistent effect across the entire auditorium. People sitting in the centre (where the limited 'sweet spot' will be situated) will get the best results, whilst those sitting at the far left and right extremes are going to receive disproportionate amounts of the left or right channels even though they can clearly see the entire picture.

To remedy this situation, you can decrease the divergence of the pan control, altering its characteristics so that a proportion of each signal is automatically 'bled' into the adjacent channels, 'spreading' the sound over a wider proportion of the stereo image. This will not only produce more coherent results for those seated at the left and right extremes of the auditorium, but will also make pans appear to glide more smoothly.



Panner characteristics when divergence is set to 50 %.

Again, it is important to remember that the behaviour of this control is dependent on the current position of the divergence control and also the state of the divergence mode toggle switch.

Joystick control

This is not actually a true control in its own right, but a convenient interface that allows simultaneous control of the Left-Right and Front-Back pan controls. The control will appear on strips that feature an LCRS or LCRSS output, and only be enabled on those that feature a mono or LR stereo input.

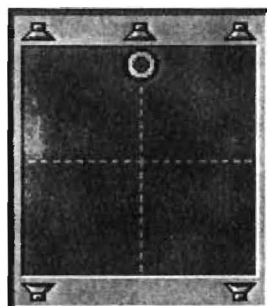
The control has two modes of operation:

The first is invoked by a single downward click and hold of the left mouse button on the joystick control button. This will launch the joystick window with the left-right and front-back pan positions represented by a 'knob' at the appropriate position in the window. This window represents the complete surround sound field and the position can be adjusted by moving the mouse. Releasing the mouse cancels the window.

The second mode is activated by double clicking on the joystick control button. As with the first mode, this launches the joystick window and positions the 'knob' at the relevant position in the window. It will, however, remain open until you subsequently click the mouse outside the limits of the control window. While the window is open you can adjust the position of the knob by clicking on the knob and dragging it to its new position whilst holding the mouse button down.

Quick centring of the joystick is possible by double clicking in either the centre of the window (on the cross hairs), or in the top centre of the window (beneath the centre speaker icon).

The Joystick control window



Divergence control

This normally controls the amount of left-right and front-back divergence. If the 'Divergence mode toggle' button is down, it will only control the amount of left-right divergence. By default the control is set to maximum (*full divergence*) when a strip is created. The control is only enabled on surround strips that have a mono or LR stereo input.

For more information about divergence, see the following section entitled *Divergence*.

Divergence mode toggle

Normally, the divergence control applies the same divergence to both the left-right and front-back pan controls simultaneously. In certain situations, however, it can be desirable to detach the divergence control from the front-back pan control and restrict its influence to just the left-right pan control instead. This 'detached' mode is activated by pressing the divergence mode toggle button into the 'down' position. When in this mode the front-back pan control is always fully divergent allowing it complete front-back movement.

This switch will only exist on strips that have an LCRS or LCRSS format output, and only enabled on strips with a mono or LR stereo input. It is also not automated, but its current setting is saved with the mixer.

Width control

This control will only be enabled on surround strips with a mono or LR stereo input. You will probably only find yourself needing to use it if you have some non-directional LR stereo source material that needs panning to a picture.

Reducing the width of a LR stereo input to the absolute minimum effectively collapses it into a mono signal.

By default, the width control is set to its minimum for mono input strips and maximum for LR stereo inputs strips.

Front-Rear PPM display toggle

Although this button appears on all mixer strips it will only be enabled on strips that have an LCRS or LCRSS format input. When enabled, clicking on the button will toggle the PPM area between displaying the front three channels (LCR) and the rear channels (of which there will be either 1 or 2 depending on the input format).

Strip input / output format indicator

Due to the fact that all of the surround strips look very similar at a glance, this display forms a handy reminder of the input and output format of the strip. It uses the same familiar icons that appear in the Routing Toolbar – the top icon, above the downward arrow, indicates the input format, the bottom icon, the output format.

Because this area of the strip allows no user interaction, it also makes a handy place to click on if you want to drag a strip to another place in the mixer, or you want to minimise a mixer strip by double clicking on it.

nowhere to route to – yet. To remedy this situation select the **New Bus** option. This will automatically create a new LCRS bus called **LCRS 1** (LCRS A1 in multiple card systems) and assign it to the output of the strip.

Repeat this process for the next seven strips, but on each occasion select an input bus ‘one greater’ than the previous strip. For example select ‘2’ as the input bus for strip 2 and ‘3’ as the input bus for strip 3. Always, however, select **LCRS 1** as the output bus for each strip.

Finally, set the input routing of strip 9 to **LCRS 1** (the bus that carries the combined outputs of strips 1 to 8) and the output routing to **o/p1&2&3&4**.

You have now completed setting up the input and output routing for your mixer and it should match the example below:

1	2	3	4	5	6	7	8	9
LCRS 1	LCRS 1	LCRS 1	LCRS 1	LCRS 1	LCRS 1	LCRS 1	LCRS 1	LCRS 1
+00.00	+00.00	+00.00	+00.00	+00.00	+00.00	+00.00	+00.00	+00.00
1	2	3	4	5	6	7	8	9

ur mixer is now ready for use and should be saved before proceeding any further.

FLEXIBLE INPUT AND OUTPUT ROUTING

The previous example described one of the most simple mixer configurations possible. In reality, more complexity and hence flexibility are required to achieve particular results. SADiE addresses this requirement by allowing a great degree of flexibility when it comes to routing internal mixer busses to mixer strips.

For example, just because a strip has an LR stereo input doesn’t mean that you have to route a conventional LR stereo bus to it. You could for example route the two rear channels of an LCRSS bus to such a strip – useful if you want to do some processing on just the surround component of you mix. Strips with mono inputs or outputs offer total freedom – any individual sub-bus can be routed to them.

One particularly useful aspect of this flexibility is the potential to conserve DSP power. Imagine, for example, that you’re producing an LCRS mix for a film. Much of your material may just be dialog and you have decided that you want to keep all of the dialog in the front three speakers. Rather than create full LCRS output strips for each channel of dialog, you could just create strips with LCR outputs which you route to the LCR sub-bus of your final surround mix bus. This is obviously ‘cheaper’ in terms of DSP power as it saves the extra (and unnecessary in this case) calculations required to derive the rear channel component.

Perhaps the best part of all this is that SADiE does the hard work for you. Whenever you want to set up the input or output bus of a strip, SADiE works out all the possible valid routings for you and presents them in the drop down list box. All you have to do is browse the list and pick the appropriate one.

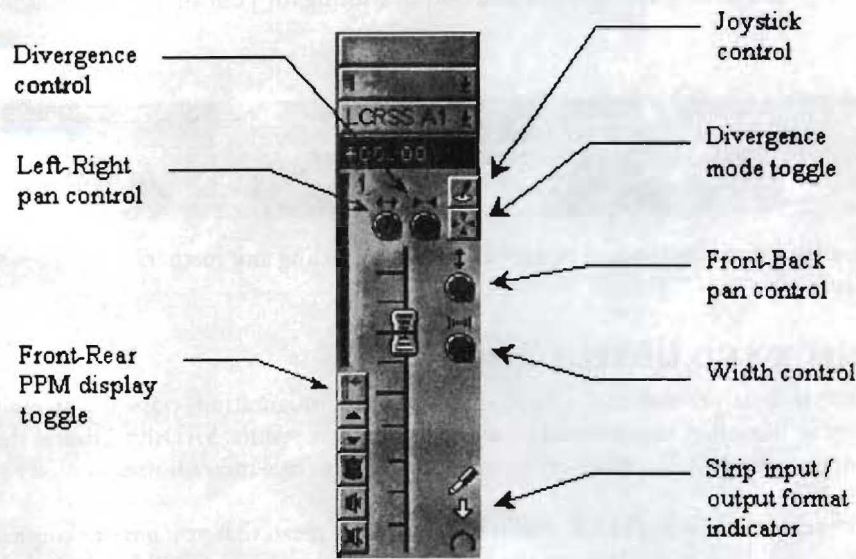
PPM MONITORING ON SURROUND MIXER STRIPS

In most circumstances the PPMs meter PRE-fader. The ONLY exception to this rule is if a strip is routed to a physical output AND the output format of the strip matches the input format, in which case the metering will be POST-fader.

UNDERSTANDING THE CONTROLS ON THE NEW SURROUND STRIPS

Although each of the surround strips has its own distinct characteristics, they all share a common interface and set of controls. Certain strips may disable some of the controls because they have no function due to the input format of the strip. Other strips may omit certain controls altogether because they have no relevance with respect to the output format of the strip. For example a strip with an LCR output does not require the front-back pan control to be present.

Below is an example of a mono to LCRSS strip (1 in / 5 out):



Each of the new controls labelled in the above example will now be explained in turn, along with specific details about which of the new strips feature each control and which do not.

Left-Right pan control

This particular control needs little introduction and will already be familiar to most users. It pans the front (and LR stereo rear channels if present) between the corresponding left and right channels. This control is disabled on strips that feature the same input and output format (i.e. LCR to LCR, LCRS to LCRS and LCRSS to LCRSS).

It is important to remember that the exact behaviour of the pan control is dependent on the current position of the divergence control. For example, if the divergence control is set to its minimum value, then the pan control will have no effect.

Front-Back pan control

This control only appears on strips that have an LCRS or LCRSS output and performs a similar function to the Left-Right pan control except it operates between the front and rear channels. The control will be disabled on strips that feature the same input and output format (i.e. LCRS to LCRS and LCRSS to LCRSS).

THE SURROUND FORMAT MIXER STRIPS

Of course, all of the surround busses would be of little use without some different mixer strips to generate and manipulate them. To offer maximum flexibility SADiE offers nine new types of mixer strip in addition to the original mono/LR stereo strips.

The new strips fall into three categories; those with an LCR output, those with an LCRS output and finally those with an LCRSS output. Each of these three categories contain a further three strip types; one with a mono input, one with an LR stereo input and one with an input that matches the format of the output.

The following table summarises the input and output formats of the nine new strip types:

Input Format	Output Format
Mono	LCR
LR Stereo	LCR
LCR	LCR
Mono	LCRS
LR Stereo	LCRS
LCRS	LCRS
Mono	LCRSS
LR Stereo	LCRSS
LCRSS	LCRSS

To avoid cluttering up the mixer process toolbar with nine new strip buttons we have opted to add just three buttons instead. These three buttons are labelled **LCR**, **LCRS** and **LCRSS** and refer to the output format of the strips that they will create. The input format must be specified by the user at the moment of dropping the strip into the mixer.

Depending on the surround format that you work with, a typical simple surround mixer might consist of 8, mono in / LCRS out strips (one for each playlist stream) and a final LCRS in / LCRS out strip for global processing and level control.

To help familiarise you with process of creating a surround mixer from scratch, the following section is designed to walk you through the entire process from the creation of a new project right up to the moment where you're ready to do some real work.

CREATING A SURROUND MIXER

In this example we'll assume that you are going to work with an 8 stream EDL, mixing mono material to LCRS.

The first step is to create a new project. Next, you need to remove all the default strips from the mixer in preparation for dropping the new surround strips in. This is certainly the most tedious part of the whole process, although it needn't be a process that you repeat every time you create a new surround project (see section headed *'Making use of Mixer Templates'* for more details). Mixer strips can be deleted by selecting the **Delete Strip** option

from the right mouse popup menu that appears when clicking on a strip. Alternatively strips can be deleted by dragging them off the mixer window (you will need to pick them up by clicking on an area of the strip that has no other function when clicked on, for example the PPMs or strip number).

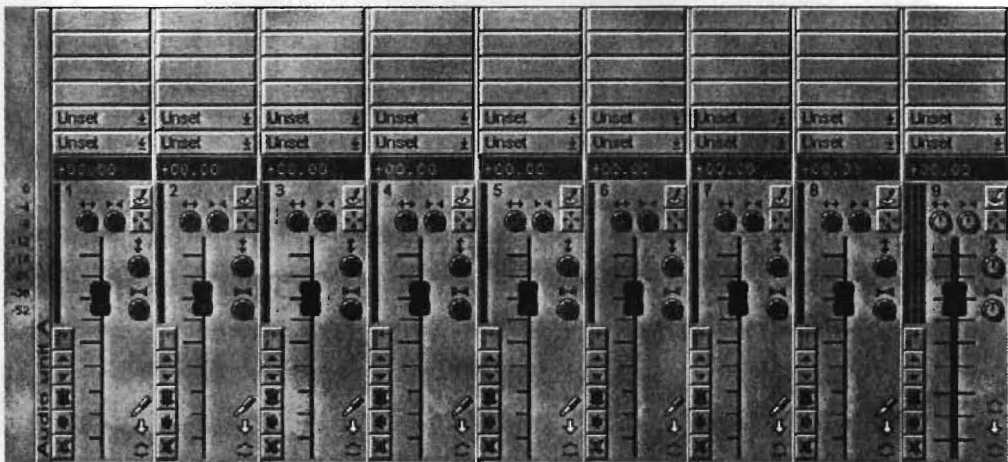
Once you have emptied your mixer, you are ready to add the new surround strips. Double click on the LCRS button on the mixer process toolbar. This will put SADiE into 'strip insert mode'. A small dialog box will then appear asking you to specify the input format for your strips. Just click OK to select the default mono option.

You are now free to insert as many strips as you like. All you have to do is point and click wherever you want a strip to be inserted. If the position you're pointing at is not valid, the mouse pointer will change from a mixer strip to a 'no go' pointer. For our example, insert eight strips – if you insert too many, don't worry, you can easily delete them again afterwards. When you have finished inserting strips, click the right mouse button to exit insert mode.

If a horizontal scrollbar appeared on the mixer window whilst you were inserting your strips, make sure it is moved to its far right extreme, in order to fully reveal strip number 8.

To insert the final strip just drag and drop from the LCRS button on the process toolbar. Click on the button and drag it all the way to the right hand half of strip number 8 (or further right if your mixer window is wider than your mixer). When you release the mouse button, the dialog box asking you to specify the input format will appear again. On this occasion select LCRS and press OK. *(If the dialog does not appear, then you are dropping the strip in an invalid position. Try repeating the process, making sure that the mouse pointer resembles a mini fader before releasing the button.)*

At this point you should have a mixer that resembles the example below:



and output routing for each strip. Currently, you will notice that all of the routing buttons are 'Unset'. *(If you can only see one row of 'Unset' buttons, enable the Output Bus buttons by clicking on the 'Output bus buttons' button on the mixer configuration toolbar – the button resembles a bus emerging from a tunnel).* Before we start, make sure that your playlist, rather than the clipstore, is linked to the mixer. Do this by clicking on the playlist window and then clicking back on the mixer window.

Click on the 'Input selection' button on strip 1 (the top 'Unset' button), scroll down the list and select '1' (this will be 'A1' if you have a multiple card system). This sets the input routing of the first strip to stream 1 of the playlist. Next set the output routing for the strip by clicking on the 'Output selection' button (the remaining 'Unset' button). This time your options will be more restricted. This is because apart from the physical outputs, there is

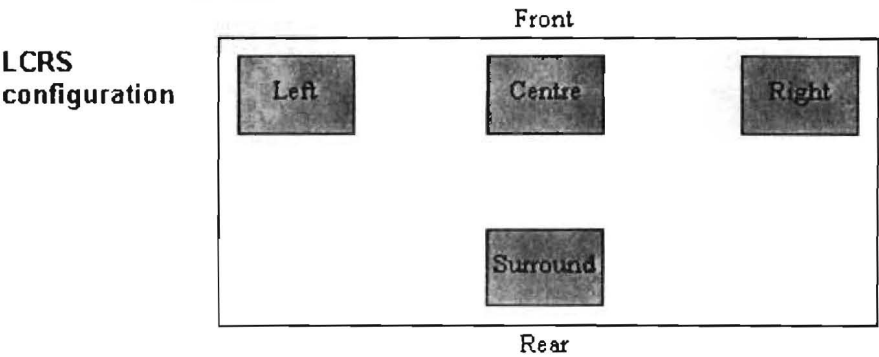
The next step is to set up the input

In most situations, you probably won't find yourself creating busses from the **Routing Toolbar**. Instead you'll probably create them from the familiar and more convenient **New Bus** option in a mixer strip's Input / Output routing drop down list boxes. It is, however, handy to know that all bus housekeeping can now be performed in this one place.

THE LCRS BUS

Now that we have established that SADiE has mono, LR stereo, and LCR busses at its disposal, we can take the next logical step.

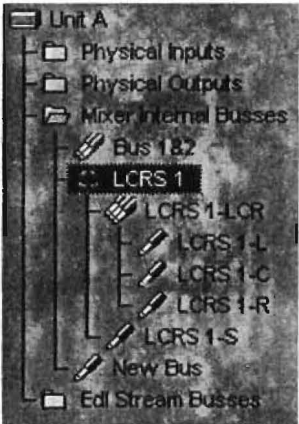
LCRS stands for 'Left, Centre, Right, Surround' and represents the configuration used by Dolby™ Stereo (also known as Dolby™ Surround). This is the most common surround format in use today and consists of four channels in the following configuration.



The 'front' consist of three channels which can be represented by an LCR bus, and the 'rear', a single mono channel which can be represented by a mono bus. To confirm this, create an LCRS bus from the **Routing Toolbar** by right mouse clicking on the **New Bus** entry in the bus tree and selecting **LCRS** from the **Create a new bus** sub-menu. The resulting LCRS bus should match the example to the right.

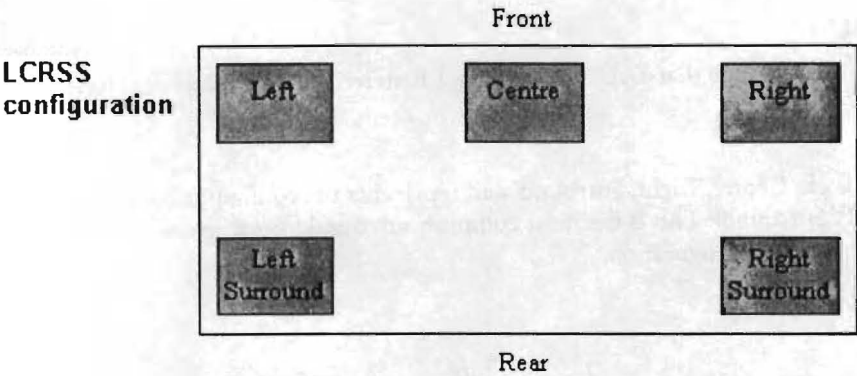
Once again, each sub-bus within the overall **LCRS 1** bus has an automatically generated suffix that uniquely identifies not only the sub-bus itself, but also its type.

All LCRS busses will be placed in the bus tree immediately after any LCR busses.



THE LCRSS BUS

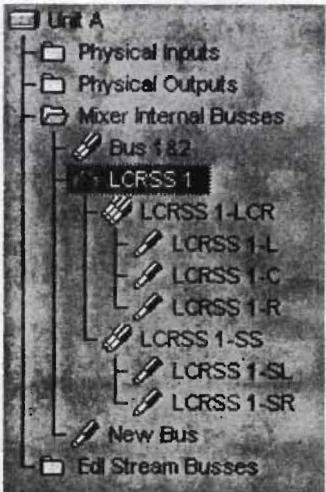
The final surround bus to describe is the LCRSS bus which is the same as the previously described LCRS bus, except for the fact that it features individual left and right surround channels. This five channel configuration is particularly significant because it forms the '5' of the increasingly popular '5.1' format used by Dolby Digital (SR-D), DTS Digital (DTS) and perhaps most importantly of all, Digital Versatile Disk (DVD).



As with the LCRS bus, the front three channels can be represented by an LCR bus. The two rear surround channels can be considered a stereo pair (for bus purposes) and therefore represented by a conventional LR stereo bus. A fully expanded LCRSS bus therefore matches the structure of the example to the right.

We briefly mentioned '5.1' above when listing formats that could make use of LCRSS busses. Some users may be wondering why we haven't taken the final 'logical' step and implemented a 5.1 format bus that consists of an integral LCRSS and mono bus.

There are several reasons why we decided not to take this approach, most of which will become apparent when you start working with mixer strips that handle surround busses. However, the reasons mainly concern the vastly differing control and processing requirements of the two busses.



This absence of an integral 5.1 style bus does not mean that you cannot produce a 5.1 mix using SADiE. It simply means that you have to consider your total 5.1 output as consisting of an LCRSS bus (to provide the main 5 channels) and a separate mono bus (to provide the .1 or LFE channel). The LCRSS bus would typically be routed to o/p1-5 and the mono bus to o/p6.

The advantage with this approach is that it enables you to process your .1 (LFE) channel independently of the other 5 channels. This is essential considering the limited frequency range requirement of the resulting channel. It also gives you total freedom when deciding what components of your overall mix to add to the channel

THE VISIBLE DIFFERENCES WHEN SURROUND SOUND FEATURES ARE ENABLED

You can tell at a glance if surround sound is enabled by checking if the pan pots on the mixer strips have a small left-right arrow legend above them (as in the example strip to the right). There is also a new button beneath the PPM display area that is used to switch the PPM display between front and rear channel metering. This button will always be disabled on conventional mono and LR stereo strips.



The **Process Toolbar** will also have three extra strip type buttons labelled **LCR**, **LCRS** and **LCRSS** appended to the end. Note that you may have to resize the mixer to bring these extra buttons into view.



SURROUND FORMAT BUSSES

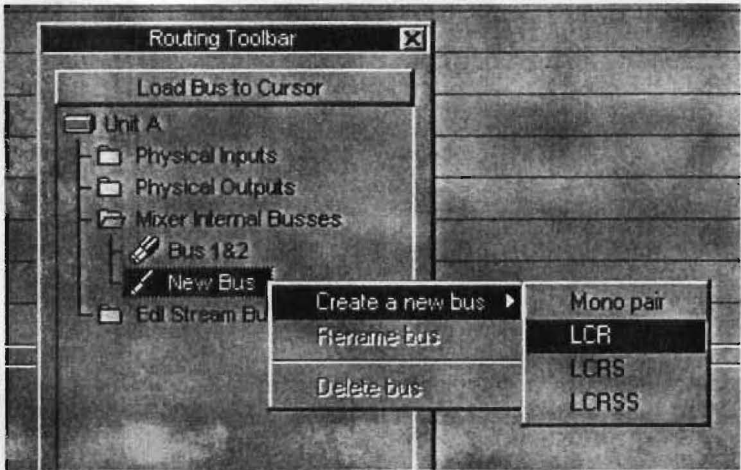
The key to successfully working with surround sound on SADiE is to understand surround format buses and how they have been implemented in SADiE. Once you have mastered this fundamental aspect, everything else will fall into place relatively easily.

With Surround disabled SADiE features just two types of buses – mono and conventional LR stereo. In actual fact, SADiE only really features mono buses. Stereo buses are little more than a convenient pairing up of two adjacent mono buses.

Surround sound in SADiE builds on this foundation. All buses are still ultimately derived from an arrangement of mono buses. We have simply provided new ‘building blocks’ in addition to the familiar LR stereo pair.

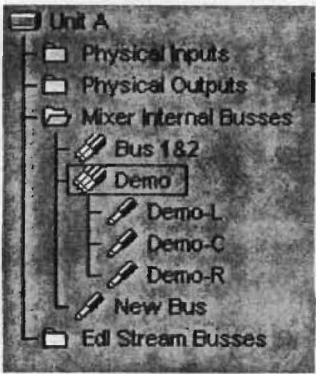
THE LCR BUS

The most important new bus type is the LCR bus (Left, Centre, Right). In order to understand exactly what this new bus consists of, open the Routing Toolbar (from the Mixer Configuration Toolbar on the mixer)



Open up the **Mixer Internal Busses** folder and right mouse click on the **New Bus** entry. You will notice that the **Create a new bus** submenu offers four options. (If you do not see this submenu then you have not yet enabled the Surround Sound features AND re-opened the mixer. See section above entitled *Getting SADiE into Surround Sound mode* for more details). The first option is **Mono pair** which will create the standard LR stereo bus with which you are all familiar. On this occasion , select the second option, **LCR**.

This creates a new LCR bus called **LCR1**. You will notice that it is placed immediately beneath **Bus 1&2** in the bus tree. Double click on **LCR1** and you will find that it is constructed from three mono buses. Each of the mono sub-buses have an automatically generated suffix (L, C or R) to uniquely identify them. You can rename a bus by right mouse clicking on it and selecting the **Rename bus** option. The one restriction with surround buses is that you can only rename the root bus (**LCR1** in this case). All of the sub-buses will be renamed automatically when the root is renamed. Try renaming **LCR1** to, say, **Demo**. The resulting bus tree should then match the example to the right. Finally, to return to the starting point, delete the LCR bus by right mouse clicking on it and selecting the **Delete bus** option.



11 - SURROUND SOUND

INTRODUCTION

The v3.6 release of SADiE is the first to incorporate support for mixing to the most popular surround sound formats. We have attempted, wherever possible, to integrate the new surround sound features into SADiE as seamlessly as possible. Hopefully, this will make your step into the world of surround sound as intuitive and straightforward as possible.

As with any major new feature, there will inevitably be many questions that can't be answered by experimentation alone. We therefore recommend that you spend a little time browsing this document before attempting to undertake anything too ambitious. Once armed with the knowledge contained in this manual, working with surround sound will be as straightforward and logical as working with conventional left-right stereo.

If, whilst familiarising yourself with the new features, you encounter a problem that seems to defy explanation, your first port of call should be the last section of this chapter, where we have listed solutions to a number of the most commonly encountered problems.

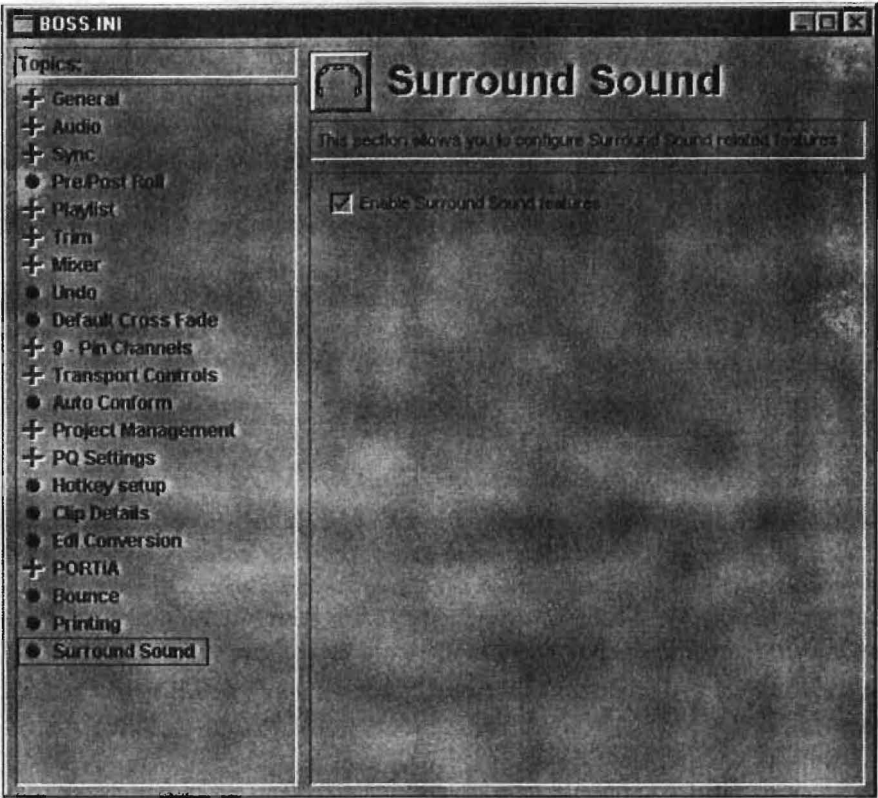
TERMINOLOGY

For many people, stereophonic implies two channels – left and right. This perception has been created by the dominance of the 2 channel, left-right format used by the music recording industry since the 1960s. There are however many 'stereo' formats. Each surround format is a stereo format. DolbyTM Stereo (also known as DolbyTM Surround) for example, is a 4 channel stereo system. It is therefore important to try and break any association that you may have held in the past between the word 'stereo' and the number '2'!

To avoid confusion, this manual will refer to conventional 2 channel stereo as 'LR stereo' where there is any possibility of ambiguity.

GETTING SADiE INTO SURROUND SOUND MODE

Not everyone will need to work in surround (yet!), so SADiE can hide everything related to surround sound from the user. This is the default operating mode. You will therefore need to first enable the Surround Sound features by opening the Setup window and selecting the 'Surround Sound' topic from the left pane. This will display the check box that allows the Surround Sound features to be activated.



Once activated, the features will not actually take effect until the next time a mixer is created or opened. It is therefore important to remember that if you switch modes whilst a project is open, you will need to close and then re-open the currently open mixer. This should be done from the mixer component in the project window rather than the mixer window itself. Better still, only change the mode whilst you don't actually have a project open. Most users will probably just enable the surround sound features once and then leave them enabled indefinitely. Having the features enabled does not restrict your ability to continue creating and working on non-surround sound projects.


If your system currently has the Surround Sound features turned off, and you attempt to load a mixer containing surround sound format strips then SADiE will automatically offer to turn the Surround Sound features on, so that it can successfully complete the load. If you decline the offer then SADiE will abort the loading of the mixer. The state of the 'Surround Sound enabled' check box is stored in the user's INI file and can therefore be set depending on each user's needs or preferences.

Record Properties - in the usual way, we'll name the recording (the video and audio files will have the same name if you record them together) in the **Transport Controls Record** pane - click and type into the empty **Track:** box. (Press return when you're finished)

You may want to choose your file format at this point - click on **Properties** on the Transport Controls, and select from **Native**, **SADiE3**, **WAV**, **BWF**, **Lightworks**, etc. If in doubt, select **Native**, but if the material is likely to be passed on somewhere else, it's worth consulting with whoever you are passing it to - a different, more generic format may be more appropriate.

There's no choice of format for video tracks, only quality, which is selected in the **Portia Record Setup** window as explained above.

Select the source for audio recording - we're coming off the Betacam (and my one is analog, but of course you can choose to record digitally from a Digi-Beta) so I'm selecting **Analog** for the Input source in **Audio Setup** - click on **Setup** on the Transport Controls. Select the sample rate and input resolution to suit.

Now, click on the playlist, press the  record enable buttons on the video stream and the audio streams you are wanting to record to. You select which audio input is routed to the stream with a drop-down list on the left hand side of the stream display, but mostly it's easiest to record track 1 to stream 1 etc.

Put the Betacam into play. If you've set up 9-pin control, you can do this by opening the **Machine Control** window for the Betacam - under the **View** menu; **Machine Control**, and if you've set the Betacam to remote, it will identify itself in the list - for instance **Betacam UVW-1800 (PAL)**; select that and the window with transport and other controls for the Betacam will open.

Upon record enabling the streams, when you put the Betacam into play you should be able to see the video, E-E through Portia, and hear the audio E-E through SADiE.

If you can't hear any audio and there is no movement on the mixer meters, first check the E-E settings - **View** menu; **Settings**; **Mixer**; **E-E mode**; check that '**E-E on record enabled streams**' is ticked. If there's still no audio, then check you have the correct audio setup, check your leads, check your audio monitoring.

If you see no video through Portia, check your leads, check the sync setup again. If the video looks odd, then check your YUV leads are the right way round. If the horizontal position looks odd, then consult the Portia hardware documentation for details of how to set that up.

If all is well, then right-mouse click on the **Online** button in the Transport controls window - this is the button to the left of the large time display. It may currently have the legend :- 9-pin ch.2 or Betacam etc. or 7030 DAT - it will display the name of the device attached to your lowest numbered 9-pin channel. On right-mouse clicking on this button you will be able to choose the Betacam from the list.

Now push the **Online** button, the Playlist will now have control of the Betacam, and also will be following its timecode. If you have not setup 9-pin control and are using LTC, then you will need to manually play the Betacam and the Playlist will follow the LTC.

If you'd left the Betacam in play, the Playlist will start playing at the correct timecode, video E-E will continue, but audio E-E will stop. Pressing the **STOP** button at this point will stop both the Playlist and the Betacam.

So, cue up the Betacam, using its Machine Control window and put it into play. Alternatively you can do this by using the standard transport controls - you'll notice that if you double click anywhere in the Playlist time bar (this is of course the normal 'locate and play' command in SADiE) the Betacam will locate to that position, and when it's in play, normal playback will continue. If you're using the Hardware controllers, pressing **SHIFT** before pressing **PLAY** will do the same thing.

Hit **RECORD** at the point you want to drop into record, and then magenta video clips and green / cyan audio clips will start to draw in the Playlist, and full E-E will return.

Hit **STOP** when you've finished.

Done. Now get on with some editing. Or go and have a nice cool beer - that's where I'm off to.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY

REPORT OF THE
COMMISSIONERS OF THE
BOARD OF TRUSTEES

FOR THE YEAR ENDING 1902

CHICAGO, ILL., 1903

NAME	POSITION	TERM
J. H.
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CHICAGO, ILL., 1903

This is another 'deviation' from the first example really, but coming from a very basic angle, so if you're worrying about Master SPG's etc.etc. then check this first - you may be able to customise this setup easier than the first example.

In this particular example I'll describe a situation with a SADiE system, with Portia, and a Betacam to load the video and analog audio material.

This time we will be using Portia itself as the source of video clocks for the setup.

CABLE CONNECTIONS

On Portia

1. For Portia inputs - connect YU & V video cables from the Betacam outputs to Portia's YUV inputs. 75 ohm terminate on the Portia break-out box.
2. To view the Portia picture - connect YU & V cables from Portia's YUV to the monitor YUV. Terminate at the monitor.

On the Betacam

1. To genlock the Betacam - connect a video cable from Portia's mixed sync output to the Betacam video input. Terminate.
2. To sync the monitor, - a video cable from the Betacam's Video Out, to the monitor's Mixed sync input. This could also be used to view the Betacam's composite output alone if the monitor has the facility to switch between viewing composite and component inputs.
3. For 9-pin machine control of the Betacam - connect a 9-pin lead from the Remote connector on the Betacam, to one SADiE's CAT (or Kitten) card's 9-pin connectors.

On the SADiE audio unit (I shall describe connections for a 24.96. Octavia and XS/XACT are very similar)

1. To provide a video reference to SADiE - connect a video cable from the Betacam's video input loop-through BNC connector, to the **lower** of the two BNC connectors on the CAT card.(the CAT's video BNC's may have been connected to the Portia breakout box in which case connect to VITC IN) *
2. To record audio from the Betacam - connect 1 to 4 audio cables from the Betacam audio outputs to SADiE's analog inputs - connectors will depend on which break-out box or audio unit you have.

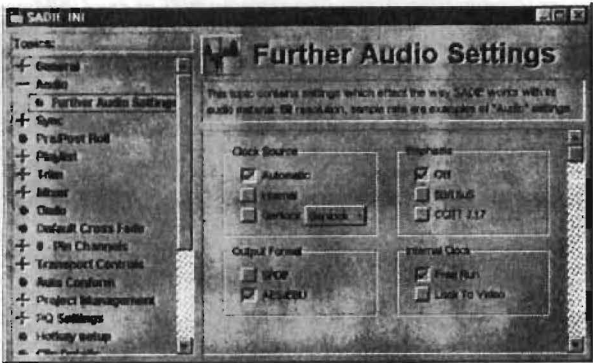
NOTES TO COVER DEVIATIONS FROM THIS SETUP

1. * For the video reference for Octavia - connect the Betacam's video input loop-through to the VIDEO BNC on the rear of the Octavia unit.
* For the video reference for the XS/XACT - connect the Betacam's video input loop-through to the XS/XACT breakout box's Video In BNC.

SOFTWARE SETUP

Set Portia Sync Setup to **Free Run** and **Sync on Y** as explained above. Portia does need a video sync on its input, even though it is the Master video clock in this example. In this example we'll use the sync on the Y signal from the Betacam.

Set Audio syncs, by opening the **Setup** page, double-click on **Audio** to reveal **Further Audio Settings**, and click on that.

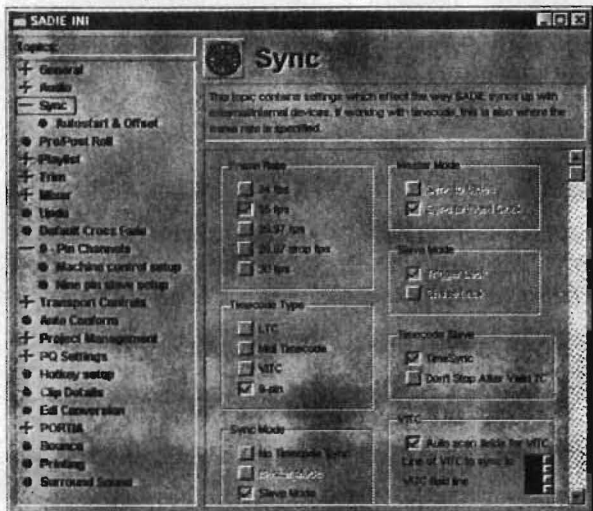


Set **Clock Source** to be **Automatic**. The SADiE audio unit is only going to be recording analog and so the audio clock will be 'internal'. BUT, when a Portia is installed, internal audio clocks are always generated from the audio unit's video reference input. The setting for 'Internal Clock' - Free Run or Lock to Video is irrelevant in this situation.

You are likely to want to setup 9-pin machine control for the Betacam and DAT, so that audio and video recordings are time-stamped correctly.

In **Setup** double-click on **9-pin Channels** and select **9-pin Master** for the channel you are using by clicking on the drop down box.

Also in **Setup** double click on **Sync** to set the timecode settings:



Set the **Frame Rate** (although SADiE will warn you if it detects you have it set incorrectly), and **Timecode Type** - my example is using timecode via the 9-pin, but you could use VITC if it's available or LTC if you connect the appropriate leads.

RECORDING AUDIO AND VIDEO IN SYNC

If this is sounding familiar and you've read the first example too, then you'll know all this by now. But otherwise, read on.

We'll record off the Betacam to get some synchronised pictures and audio in. We're now in familiar SADiE territory (you did read the rest of the manual didn't you ? If not have a look at *Chapter 2 - Recording*)

Start a new project.

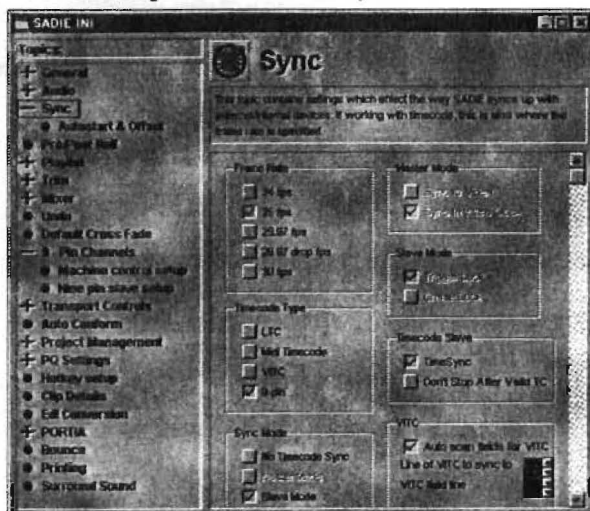
box and so I select **Genlock**. I could be using any otherwise unused AES input and so would select that one from the drop-down list.

The setting for 'Internal Clock' - Free Run or Lock to Video is irrelevant, because, when a Portia is installed, frame syncs are always taken from the audio unit's video reference input.

You are likely to want to setup 9-pin machine control for the Betacam and DAT, so that audio and video recordings are time-stamped correctly.

In **Setup** double-click on **9-pin Channels** and select **9-pin Master** for the each of the channels you are using by clicking on the drop down box.

Also in **Setup** double click on **Sync** to set the timecode settings:



Set the **Frame Rate** (although SADiE will warn you if it detects you have it set incorrectly), and **Timecode Type** - my example is using timecode via the 9-pin, but you could use VTC if it's available or LTC if you connect the appropriate leads.

You're now ready to go (phew) - have you double checked those leads ???

RECORDING AUDIO AND VIDEO IN SYNC

We'll record off the Betacam to get some synchronised pictures and audio in. We're now in familiar SADiE territory (you did read the rest of the manual didn't you ? If not have a look at *Chapter 2 - Recording*)


Start a new project.

Record Properties - in the usual way, we'll name the recording (the video and audio files will have the same name if you record them together) in the **Transport Controls Record** pane - click and type into the empty **Track:** box. (Press return when you're finished)

You may want to choose your file format at this point - click on **Properties** on the Transport Controls, and select from **Native**, **SADiE3**, **WAV**, **BWF**, **Lightworks**, etc. If in doubt, select **Native**, but if the material is likely to be passed on somewhere else, it's worth consulting with whoever you are passing it to - a different, more generic format may be more appropriate.

There's no choice of format for video tracks, only quality, which is selected in the **Portia Record Setup** window as explained above.

Select the source for audio recording - we're coming off the Betacam (and my one is analog, but of course you can choose to record digitally from a Digi-Beta) so I'm selecting **Analog** for the Input source in **Audio Setup** - click on **Setup** on the Transport Controls. Select the sample rate and input resolution to suit.

Now, click on the playlist, press the  record enable buttons on the video stream and the audio streams you are wanting to record to. You select which audio input is routed to the stream with a drop-down list on the left hand side of the stream display, but mostly it's easiest to record track 1 to stream 1 etc.

Put the Betacam into play. If you've set up 9-pin control, you can do this by opening the **Machine Control** window for the Betacam - under the **View** menu; **Machine Control**, and if you've set the Betacam to remote, it will identify itself in the list - for instance **Betacam UVW-1800 (PAL)**; select that and the window with transport and other controls for the Betacam will open.

Upon record enabling the streams, when you put the Betacam into play you should be able to see the video, E-E through Portia, and hear the audio E-E through SADiE.

If you can't hear any audio and there is no movement on the mixer meters, first check the E-E settings - **View** menu; **Settings; Mixer; E-E mode**; check that '**E-E on record enabled streams**' is ticked. If there's still no audio, then check you have the correct audio setup, check your leads, check your audio monitoring.

If you see no video through Portia, check your leads, check the sync setup again. If the video looks odd, then check your YUV leads are the right way round. If the horizontal position looks odd, then consult the Portia hardware documentation for details of how to set that up.

If all is well, then right-mouse click on the **Online** button in the Transport controls window - this is the button to the left of the large time display. It may currently have the legend :- 9-pin ch.2 or Betacam etc. or 7030 DAT - it will display the name of the device attached to your lowest numbered 9-pin channel. On right-mouse clicking on this button you will be able to choose the Betacam from the list.

Now push the **Online** button, the Playlist will now have control of the Betacam, and also will be following its timecode. If you have not setup 9-pin control and are using LTC, then you will need to manually play the Betacam and the Playlist will follow the LTC.

If you'd left the Betacam in play, the Playlist will start playing at the correct timecode, video E-E will continue, but audio E-E will stop. Pressing the **STOP** button at this point will stop both the Playlist and the Betacam.

So, cue up the Betacam, using its Machine Control window and put it into play. Alternatively you can do this by using the standard transport controls - you'll notice that if you double click anywhere in the Playlist time bar (this is of course the normal 'locate and play' command in SADiE) the Betacam will locate to that position, and when it's in play, normal playback will continue. If you're using the Hardware controllers, pressing **SHIFT** before pressing **PLAY** will do the same thing.

Hit **RECORD** at the point you want to drop into record, and then magenta video clips and green / cyan audio clips will start to draw in the Playlist, and full E-E will return.

Hit **STOP** when you've finished.

Done.

The same basic procedure can be followed for recording audio from the DAT player - you may want to switch to AES input in **audio setup**. You can select the DAT player by right-mouse clicking the **Online** button, and now SADiE will switch its control and timecode reference to be from the DAT.

If you have no 9-pin control, you'll need to connect an LTC cable from the device you're recording from. Set SADiE's **Sync Setup** timecode setting to **LTC**. Putting the Betacam or DAT into play will have much the same effect on the playlist when you push the **Online** button, and the recording procedure is the same.

EXAMPLE SETUPS - 2. Synchronising with a stand-alone SADiE & Portia

I'm assuming in this (all singing, all dancing !) example that we are using a Betacam VTR to load video (and analog audio) onto SADiE, and additionally we'll have a synchronisable DAT player with 9-pin control to allow digital audio recordings. We have a component monitor to view the Portia output. If your monitor has a composite input only, you will need a YUV to composite encoder between Portia's outputs and the monitor.

CABLE CONNECTIONS

On Portia

1. To genlock Portia - connect a video cable from the master SPG's Mixed video Sync output (or 'Black and Burst' or 'Composite sync' or 'Video Reference') to Portia's Mixed Sync input. 75 ohm terminate on the Portia break-out box.
2. For Portia inputs - connect YU & V video cables from the Betacam outputs to Portia's YUV inputs. 75 ohm terminate on the Portia break-out box.
3. To view the Portia picture - connect YU & V and sync video cables from Portia's YUV and Mixed Sync output to the monitor YUV and Mixed sync inputs. Terminate at the monitor.

On the Betacam

1. To genlock the Betacam - connect another video cable from the master SPG's Mixed video sync output to the Betacam's Video Input. Terminate. If the Master SPG has too few video outputs, you may need to 'loop through' instead. - So unterminating the Portia Mixed Sync input and connecting from the loop-through output to the Betacam Video Input instead is perfectly acceptable.
2. For 9-pin machine control of the Betacam - connect a 9-pin lead from the Remote connector on the Betacam, to one of SADiE's CAT (or Kitten) card's 9-pin connectors.

On the DAT player

1. To genlock the DAT to AES reference - connect an AES cable between the Master SPG and the DAT's AES in. Set the DAT to EXT sync and digital in. Alternatively, depending on the number of AES out connectors on the SPG, you could connect an AES lead from a spare SADiE output to the DAT's AES in
2. For 9-pin machine control of the DAT - connect a 9-pin lead from the Remote connector on the DAT, to one SADiE's of CAT (or Kitten) card's 9-pin connectors.

On the SADiE audio unit (I shall describe connections for a 24.96. Octavia and XS/XACT are very similar)

1. To genlock SADiE - connect an AES cable between the Master SPG and SADiE's AES reference input. *
2. To provide a video reference to SADiE - connect a video cable from the master SPG's Mixed video sync output to the CAT cards **lower** BNC connector. Alternatively use the 'VITC IP' connector on the Portia BOB if this BNC connector is looped to the Portia BOB. Again, if there's a shortage of BNC outputs on the Master SPG, you can take a loop-through signal from the Betacam or Portia. On Octavia - you will have to connect to the VIDEO input on the rear panel of the unit, which has no loop-through *
3. To record audio from the DAT - connect an AES lead from the DAT's AES output to a SADiE audio input - AES 1-2 should be fine.
4. To record audio from the Betacam - connect 1 to 4 audio cables from the Betacam audio outputs to SADiE's analog inputs - connectors will depend on which break-out box or audio unit you have.

NOTES TO COVER DEVIATIONS FROM THIS SETUP

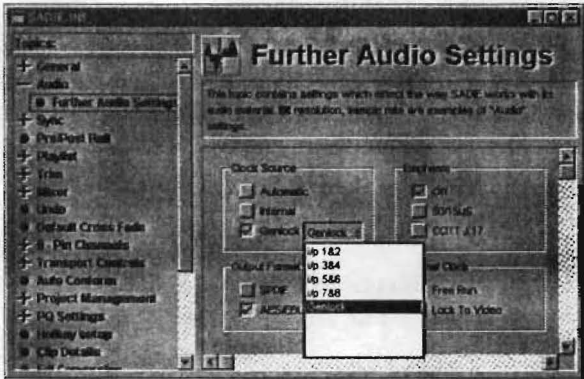
If you have the Master SPG and 24.96 or Octavia, don't read the next section, it will only confuse you more !

1. * for XS/XACT users. XS has only one digital input, and no separate AES Ref. In connection. If you're not recording digitally, then that's fine, you can use the AES input for AES Ref. However, with this setup you're most likely to want to record digitally or you wouldn't have bothered with the Master AES SPG. In this case, set the **Clock Source** to **Genlock** and this time choose **I/p 1&2**. You will be syncing by using the same AES cable from the digital machine you are recording from - in this case the DAT, and therefore you **must** ensure that the DAT is taking its clock source from the Master SPG. So in simple terms in this example, with an XS, there is only one cable to cover SADiE lead 1 and lead 3 in the above example.
For the video reference for the XS/XACT - connect from one of the Master SPG's video outputs to the XS/XACT breakout box's Video In BNC.
2. If your Master SPG has no AES Reference out, only video syncs. If your digital player - the DAT in this example, can be set to clock to the video reference, then, run another video cable to the DAT from the SPG, set it to External clock/ video, and then the AES cable from the DAT's AES out to SADiE's AES in can be used as the genlock source for the audio. In this case, set SADiE's **Audio Setup; Clock Source; Genlock**; to be I/P 1&2 (or whatever SADiE AES input the DAT is connected to.)
3. If you have NO Master SPG. If you're working with digital audio this is possible but, in this setup, you will most likely have to use the Betacam as a source of master syncs, which is not really advisable. It's likely that the syncs will not be stable enough and the end result could be excessive jitter on SADiE's AES outputs. In the above main example, 5 connections will be unavailable. You could replace these, respectively, with:
 - i) 'Portia 1 - video ref.' a video cable from the Betacam video out to Portia Mixed syncs in
 - ii) 'Betacam 1 - video ref.' - nothing - the Betacam is the master
 - iii) 'DAT 1 - AES ref.' - a video cable, either from the Betacam's second composite video out, or the loop-through sync output from the video monitor. Then set the DAT to be clocked to video, as in the 'deviation' number 2 just above.
 - iv) 'SADiE 1 - AES ref.' - would be replaced by the AES cable from the DAT output to SADiE's input, and then SADiE's clock source / genlock option changed to be that input - again, as per the 'deviation' number 2 just above.
 - v) 'SADiE 2 - video ref.' - remember the SADiE audio unit **must** have a video sync at its video input when working with Portia. This could now be supplied by a video cable looped-through from either the DAT, or straight from the video monitor. Whatever you do, check that these sync cables don't having a missing loop somewhere and that everything is set to genlock to the video input (except the SADiE audio unit which is automatically set that way when you install Portia, and will be genlocked to it's AES input).

SOFTWARE SETUP

Set Portia Sync Setup to **Genlock** and **Mixed Syncs** as explained above.

Set Audio syncs, by opening the **Setup** page, double-click on **Audio** to reveal **Further Audio Settings**, and click on that.



Set **Clock Source** to be **Genlock**, and then select, (from the drop down box shown) the connection on which the AES reference signal is appearing - in this example I'm using the "AES Ref. in" on the SADiE 24.96 '800' breakout

Scrubbing the EDL works in the same way, and most importantly of course, the video clips scrub in sync with the audio clips. As an example of how powerful working with Portia can be try the following brief exercise.

To synchronise an audio clip with a video clip

1. Place the video clip and audio clip into the EDL. Drag and drop them from the Clipstore if necessary



2. Jog/shuttle the EDL and find a sync point in the video entry - a clapper or any obvious sync point. Mark this with a locator for safety.
3. Now with the hardware controller or with the mouse, put the audio clip into playlist edit mode and select HOT, SOURCE mode, with scrub on. You can now drag the audio across the stationary 'play head' at which the Portia is still, and listening to the audio clip you should be able to scrub to find the same audio sync point.
4. Drop the audio clip at the correct point and the audio and video will now be in sync.

It's possible to make edits in the video stream, using the razor and scissors tools. There are a few basic areas where Portia editing differs from normal audio editing.

- Portia has a single channel of video, and so there are no fades.
- All edits are made at frame boundaries.
- Dragging and dropping a video entry to a new position in the EDL will replace any existing video entries in the new area, shortening them to make room for the new clip.
- There are three additional editing tools, that are made available by right-mouse clicking on a video entry, as shown in the picture above:
 1. **Extend entry start to fill gap**
 2. **Extend entry end to fill gap** - these two options keep the video entry locked in time, and if more video is available in the video track that this entry is cut from, these will lengthen it forwards or backwards to meet a preceding or following entry. In other words fill the holes in the EDL.
 3. **Move nearest cut to current time** - you would use this if you have an edit between two video entries, that are in sync, but the edit point is not at the right position. Move the current time to a new position, and once again, only if the excess video exists in the recorded video tracks, this option will move the edit point to be at the new position.

These three options are greyed out if SADiE detects that it's not possible to do that action - i.e. there is not enough spare video to move the entry start or end.

EXAMPLE SETUPS

There are as many different ways of connecting as there are leads in the examples I am about to propose and the setup will entirely depend on the equipment that is available. But the basic rules are the same:

- Every piece of equipment must be genlocked to the same signal.
- The more devices you have re-generating syncs (as opposed to looping-through) the more likely it is that the sync will break down somewhere.
- Video equipment must be genlocked to one master video reference signal.
- Digital audio equipment must be genlocked to the same master reference signal, however as digital audio runs at higher frequency than video field syncs, then relying on only a video signal to genlock a digital audio unit to is likely to increase jitter in the system. It's better to have one unit generating a digital audio clock from a video signal, and then lock other digital audio devices in the setup to that digital audio clock, than to have all devices resolving separately to the same video signal. Best is to have a Master SPG (Sync Pulse Generator) generating synchronous video and digital audio clocks from the same source. However, if all your audio recordings are to be in the analog domain, then digital audio clocks are less crucial.

Example 1 below is a full-blown synchronised setup that we would recommend if recording from digital audio sources. Example 2 is a much simpler stand alone setup, recording analog, and with everything synchronised to the Portia.

ERROR MESSAGES

Most sync errors are preceded by a 'Peggy Freeze field error' message

- **Portia failed to enter playback : there is no video input at the audio unit** then you'll need to connect a video sync signal to the SADiE audio unit. This is the lower of the two BNC connectors on the CAT, or VITC IP connector on the Portia BOB if it's connected on to the CAT card. On an Octavia this is VIDEO. On an XS/XACT system, this is VIDEO IN on the BOB.
- **'Error - no video reference is present at the audio unit...'** on entering SADiE is the same problem.
- **'PORTIA failed to enter playback : the video reference at the audio unit is not locked to PORTIA'** - this is similar, except the SADiE audio unit is detecting that its video ref. signal is not locked to that on the Portia unit (or to the Portia itself if that is in Free Run). Sometimes the problem could be exactly the same as above - NO video ref., and its just picking up some noise, but most likely is that there is a break in the video genlock chain somewhere - SADiE is receiving a genuine video sync signal but its different to Portia's genlock signal. You'll have to chase leads again to rectify this.
- **Magenta screen on video record enable.** Portia has no video sync on its input - check the **Genlock Source** in **Portia sync setup** is correct, and there ARE syncs at the specified input.
- **Rolling picture on video record enable.** Portia is not in sync with the video player - perhaps Portia is Free Run and the Betacam is too ?
- Portia is unlikely to be able to sync to a VHS signal even if it's decoded to YUV - you will need a Time Base Corrector.

There are more Notes and possible faults in the Portia Installation guide.

The connections and sync setup are sometimes the most time consuming part of getting Portia running. Once you have your equipment linked together it's wise to draw a diagram of the cabling, so that you can more easily incorporate different equipment, or set it all up again if things change. Sorry - grandmothers and egg-sucking etc.etc.

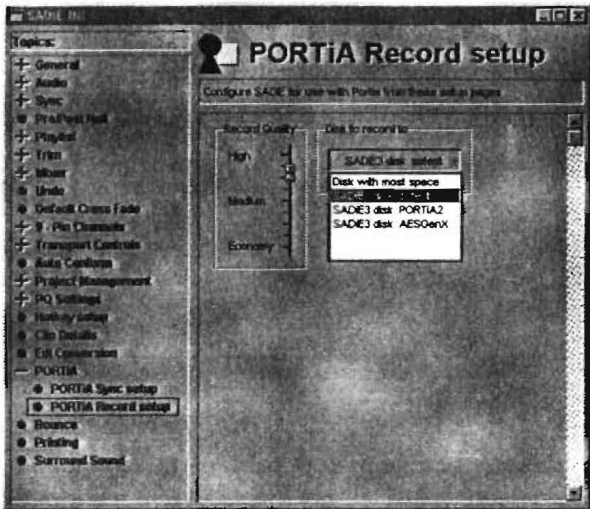
EXAMPLE SETUPS - 1. Synchronising with an external sync source

The most ideal way to setup the Portia/SADiE system, is to use a separate Master Sync Pulse Generator (SPG) to provide both a video reference signal and an AES clock source.

AES reference signal **must** be synchronous with the video signal that is providing Genlock for the rest of the system. The need for a separate AES reference is less if you are working with analog audio recordings only.

PORTIA RECORD SETUP

is accessed in the normal Setup Page (View menu, Settings) under Portia. Double click on 'Portia' to reveal the 'Portia Record Setup' branch, and then click on that branch to show the page as below.




Here you can choose which disk the video files will be recorded to from the drop-down list - you either choose a single disk by name, or 'Disk with most space', which, in the normal way will record to the disk that has the most free space on it at the moment of going into record.

You can also choose the **Record Quality**.

Portia uses a JPEG compression scheme. With this system, the amount of data stored is not fixed to a compression ratio, as different images will produce different size files. With the slider in the Record setup page, you can choose a quality level. In practise, record times on a 9GB disk drive will be approximately:

Record Quality setting	Record Time in minutes on 9GB drive
High	75
Medium	180
Low	300

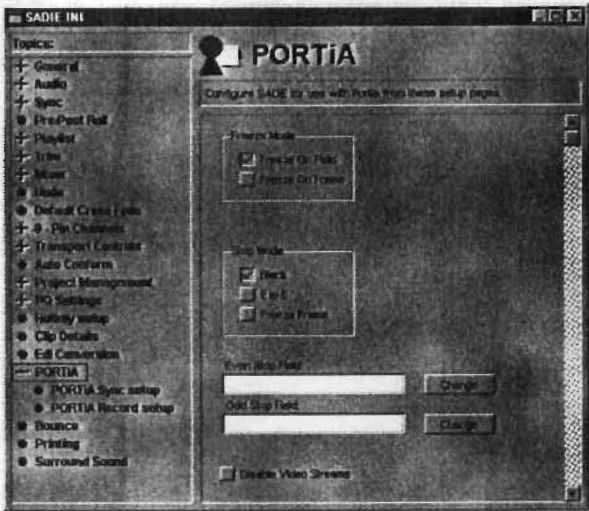
To record video into SADiE now, the procedure is exactly the same as with audio.

Record enable the video stream using its  record enable button. Portia will go into E-E - the video on Portia's inputs will be echoed to the video outputs. This way you are able to see the incoming video in preparation for recording.

You go into record in the usual way - on the Transport Controls, press RECORD to go into record directly. Alternatively you can press PLAY and then push RECORD at the moment you want to drop in, and press RECORD again at the moment you want to drop out. Or using the Left/Right locators you can set the video recording to automatically punch in and out at preset times. *See Chapter 2 Recording - Dropping in and out of record.*

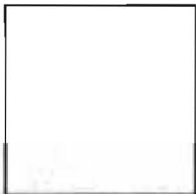
In the usual way the Video Entries will be drawn in the EDL as magenta blocks. Video entries *always* appear as blocks - there is no waveform view for video clips.
Recording can be done with or without timecode in the usual way.

OTHER SETUP OPTIONS



Freeze Mode chooses whether Portia displays the current field or both fields of the current frame when the playlist is stopped. Freeze on frame may sometimes look a little jittery if there is a lot of movement in the picture. Freeze on field will give a more steady picture. Portia will always output a picture when there is an active EDL - when in stop it will display the current field or frame
Stop Mode determines what happens when there is no active EDL. Portia will either show **Black**, **E-E** (echo the input video signal) or display a **Freeze Frame**. The Even and Odd Stop Field boxes allow you to select a suitable file to display for the freeze frame. These files need to be baseline JPEG compressed, separate odd and even (interlaced) fields and the correct size for PAL (720 x 576 - so each file would be 720 x 288) or NTSC (720 x480).
Disable video streams - this allows you to turn off Portia. You will still see the video entries in the EDL, but no video will be displayed.

PORTIA EDITING

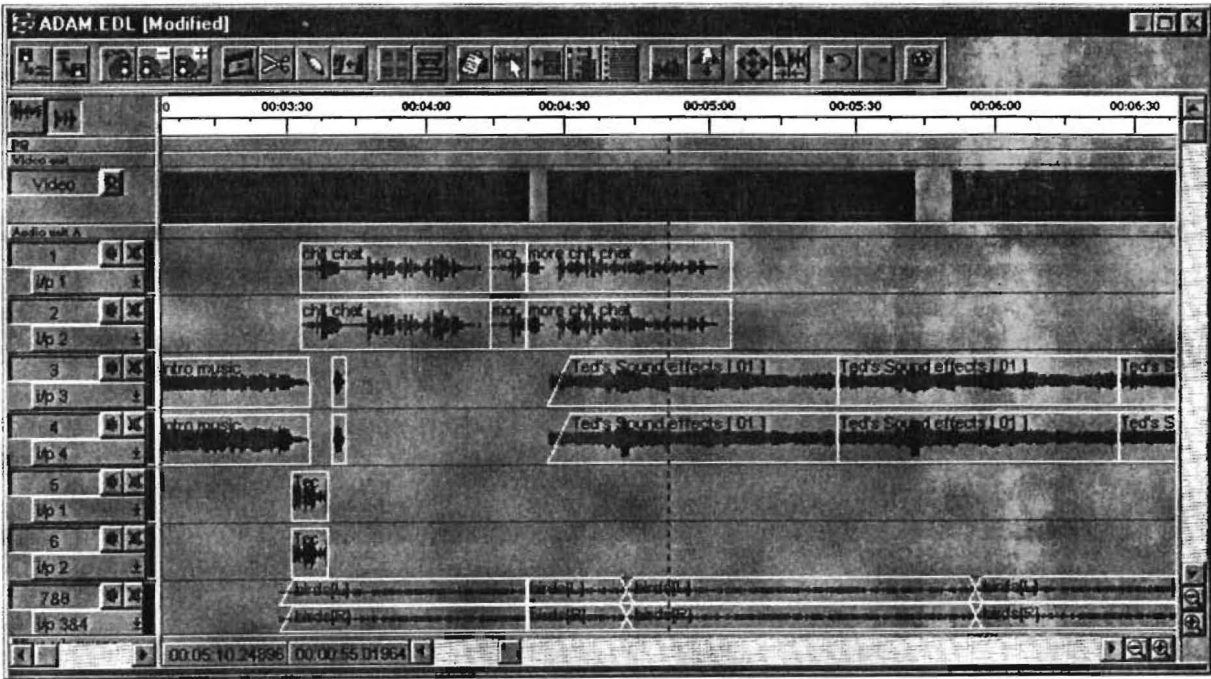


Portia entries in the EDL are treated in much the same way as audio entries. Cut, Copy, Paste, Razor, Scissors, Glue, Remove Gap, Copy to Clipstore, lock, ALL autoplace and Slip functions, undo/redo - all these functions are exactly the same.
You cannot use the Playlist Editing mode, they can't be loaded into Trim windows, Group/ungroup does not work, and you can't bounce video clips.
Portia entries are saved as part of the EDL - they are just another EDL entry, and can be viewed as entries in the Text Edl of course.

10 - PORTIA

OVERVIEW

Portia is an optional PC plug-in card which adds video recording and playback to a SADiE system. When a Portia is installed, the software adds a video stream at the top of EDLs, which will contain video entries. The video entries are fully integrated into SADiE - these can be manipulated in similar ways to ordinary audio entries - drag and drop, razor, copy/cut and paste, autoplacement, slip etc. and some editing functions operate exactly the same. The video entries are coloured magenta to distinguish them from audio entries, and you'll notice that video clips appear in the Clipstore and Disk Management with a new 'film' icon.



There is a separate document that explains the installation and connections for Portia. The Portia card has standard component YUV inputs and outputs, but you may have other equipment that converts to and from other video formats - for instance composite NTSC/PAL decoder/encoders. Note that video connected into Portia should be 75 ohm terminated.

SYNC SETUP

As with all video equipment, synchronisation has to be set up correctly, but it's important to note that Portia must be synchronised to your audio hardware for the two to work together correctly. There are various ways of doing this and I shall describe a couple, but the golden rule is that there **must** be a video signal with syncs present at the video input of your audio hardware, and it **must** be in sync with Portia, for video and audio to play together correctly.

The position of the video input to the audio card depends on which audio hardware you have:

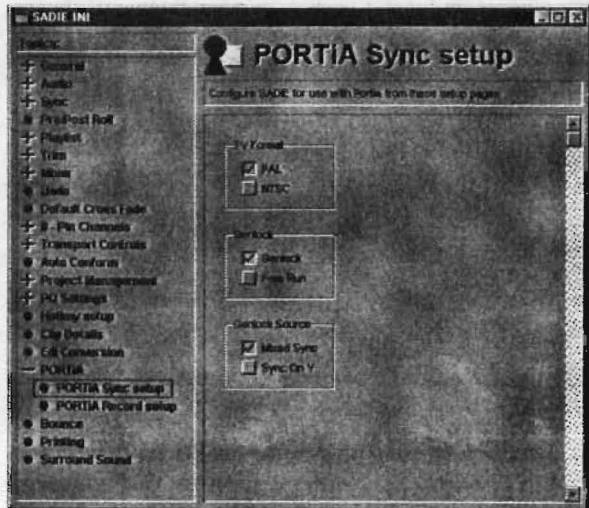
Audio Hardware	Position of video Input
XS/XACT - 'SADiE Classic'	Break-out box "Video In" BNC connector. Note you must have

	an XACT card, and there must be a connection inside the PC between the XS and the Portia - see installation guide for details.
Octavia	"Video" - BNC connector on the rear panel of the Octavia unit.
SADiE 24.96	The un-named BNC connector on the CAT card on the rear of the PC - there are two - the lower is the video input, and the top one is a loop through. You must use the lower one. OR : you may have your CAT card's BNCs connected to the Portia BOB for convenience. In this case the lower BNC on the CAT is connected to CAT IN, and the upper one to CAT OUT. In this case the video input is marked VITC IN on the Portia BOB.

Note: The CAT card's upper 'CAT OUT' BNC connector, is a video output and not a loop-through. When there is a video signal on the lower 'CAT IN' connector, this is passed through to the 'CAT OUT'. So this is like a loop-through but it's not a hard-wired connection. The CAT IN connector is always 75 ohm terminated.

PORTIA SYNC SETTINGS

are in the normal Setup Page (View menu; Settings) under Portia. Double click on 'Portia' to reveal the 'Portia Sync Setup' branch, and then click on that branch to show the page as below.



The PAL/NTSC choice should be a simple one .

Genlock or Free Run is described below.

Mixed Sync or Sync on Y sets the input connector for Genlock and where input syncs are appearing - Mixed syncs if you have a separate mixed syncs signal on Portia's 'mixed sync' input, or you can sync to a Y signal if syncs are included on that signal.

AUDIO SYNC SETTINGS

are determined by how you are syncing the audio hardware to Portia. If a Portia is installed, you don't need to change anything and the audio will automatically take its synchronisation from the video input. However you can separately set the audio hardware to sync to an AES reference signal, which will give you the advantage of lower jitter, as the AES reference is a much higher frequency sync signal than a video sync reference. However - this

1. First find the command line:

- **Windows 95**

If your system is set to run SADiE automatically when you switch on, the relevant icon can be found under the Start button | Settings | Taskbar | Start Menu Programs. Click “Advanced” and, in the Explorer box that appears, open the Programs folder and then the StartUp folder. The SADiE shortcut icon will be in the list on the right.

If you run SADiE manually from the Start button, follow the above instructions, but instead of finding the icon in the StartUp folder, it will be in the SADiE Disk Editor one.

Alternatively, you may have an icon on your Windows 95 desktop.

Right-click on the relevant icon, select Properties and the Shortcut tab of the box that appears. The command-line is in the box labelled “Target”.

- **Windows 3.1 and 3.11**

If SADiE starts automatically, the relevant icon will be in the “Start Up” group in Program Manager, otherwise it will be in the SADiE Disk Editor group.

Single-click on the icon to select it, select the File menu at the top of Program Manager, and choose Properties. The command line is in the box labelled “Command Line” (... honestly!).

A typical command line is:

```
C:\SADIE3\BIN\SADIE3.EXE_/dc:\SADIE3\desktops\800def.dsk
```

The first part of the command line, C:\SADIE3\BIN\SADIE3.EXE is the instruction to run the program file “Sadie3.exe” which runs SADiE. It gives the full location (or “path”), of the file - it’s in the “Bin” folder, which in turn is in the “SADIE3” folder, which is on the C drive.

The second part starts with a space (shown above as _) and then /d, which is the instruction to load the following file as the desktop, in this case “800def.dsk”, which is in the “Desktops” folder, in the “SADIE3” folder, on the C drive.

2. Now edit the command line by clicking within it to change the text. The line may be longer than the box displaying it, but you can use the keyboard arrow keys to move it.

- To automatically load a desktop file, carefully change the current desktop file name to the one you want to use. You probably won’t have to change the folder parts of the path, unless you have been storing desktops in strange places.

Remember to keep the space shown as _ after “Sadie3.exe”.

NOTE: On Windows95 systems, any paths that use filenames with spaces in them must be enclosed in quote marks.

- To log-in automatically, carefully add the following to the end of the command line, after any quotation marks:

```
_/uNNNNN_pWWWWW
```

where “NNNNN” and “WWWWW” are your user name and password respectively.

Note the spaces shown as _ before the first oblique and between your user name and the P.

It is a common knowledge that the
the world is a very large place
and that there are many different
people living in it. Some of these
people are very different from
others. Some are very kind and
friendly, while others are very
mean and cruel. This is why it is
important to be kind and friendly
to everyone we meet.

There are many different kinds of
people in the world. Some are very
kind and friendly, while others are
very mean and cruel. This is why
it is important to be kind and
friendly to everyone we meet. We
should always try to be nice to
other people, even if they are
different from us. This is the
best way to make the world a
better place.

THE END OF THE WORLD

There are many different kinds of
people in the world. Some are very
kind and friendly, while others are
very mean and cruel. This is why
it is important to be kind and
friendly to everyone we meet. We
should always try to be nice to
other people, even if they are
different from us. This is the
best way to make the world a
better place.

Generally, 800 x 600 (often called SVGA) is a good default. You may prefer 640 x 480 (often called VGA) if you have a small monitor or a SADiE portable, and 1024 x 768 if you've got a 21" monitor. The method of changing resolution may be different for different PCs and different display cards, but the following are most common:

1. WINDOWS 95

From the Start button, select Settings | Control Panel, double-click on the Display icon and select the Settings tab of the box that appears. There is a sliding control to change resolution, and a selection box for the number of colours. Most changes can be done without closing down and restarting Windows 95, but if that is necessary, the screen instructions will warn you and you can close SADiE and save your work accordingly.

2. WINDOWS 3.1 and 3.11

- Your display card may have been supplied with it's own program for changing resolution. This may appear:

- as an icon in Program Manager - many UK turnkey PCs use a program called SETRES.
- as an icon inside "Control Panel". Double-click on the Control Panel icon in Program Manager's "Main" group - the program may be called "Kelvin 64".

Open the program by double clicking on its icon. There is usually one section to set resolution, another for number of colours, and another for font size. Large fonts are not recommended as they can cause problems with SADiE's time displays. Having made your selection here, press OK, and the program will usually tell you that Windows will have to be restarted for the changes to take effect

- If you do not have a specific display program, in the Main group of Program Manager there is a Windows Setup icon. Double-clicking on this will show the system settings for the Mouse, Keyboard, Network, and Display. Before you change the Display settings it's worth hunting for the disks that came with your PC - you may be asked for the Windows® disks or the disks that came with your display card. To change the display driver, select "Change System Settings..." from the Options menu, and select the appropriate driver from the display list. If you cannot see one that looks correct, don't select them at random - if you try the wrong driver you may get a blank or "wild" screen and it's not so easy to reset things if you can't see what you're doing. (You need to run Setup from the Windows directory in DOS.)

If in doubt, speak to the supplier of the PC. Usually, the standard VGA driver - called just VGA - will work at 640 x 480, and "Super VGA" or "SVGA" will run at 800 x 600. However, sometimes you'll get better performance with the drivers that are supplied with the display card.

MESSAGE BOX PLACEMENT

In the Setup window, on the General page there are settings to allow you change the position on the desktop at which messages, warnings and errors appear.

You can choose

% from left of desktop

% from top of desktop

and you're able to Test the settings to see where you've placed the messages.

This is particularly useful if you are running SADiE on a machine with more than one monitor. With the default setting, messages appear in the middle of the screen, which can be spread across two monitors on a twin screen system.

CHANGING HOW SADiE STARTS UP

STARTING SADiE AUTOMATICALLY

Windows 95

To make SADiE start automatically when Windows95 starts:

1. Click on the Start button and point to Settings
2. Click Taskbar, then the Start Menu Programs tab.
3. Click "Add" followed by "Browse".
4. Open folders to locate the icon that you use to run SADiE. It should be under Win95\Start menu\Programs\SADiE
5. Click Next, then double-click on the Start Up folder.
6. Type a display name for the new icon, then press Finish.

To stop SADiE starting automatically:

1. Click on the Start button and point to Settings
2. Click Taskbar, then the Start Menu Programs tab.
3. Click "Remove".
4. Open the folders Programs and Start Up.
5. Select the SADiE icon and press Remove.

Windows 3.1 and 3.11

If your system is set to run SADiE automatically when you switch on, there will be a SADiE icon in the Program Manager group called "Startup". If not, there will just be the one in the "Sadie Disk Editor" group.

To make SADiE run automatically, copy the icon in the Sadie Disk Editor group to the Startup group by holding the Ctrl key while dragging it across.

If you don't want SADiE to start automatically, delete the icon in the Startup group: Select it with a single-click and press the Delete key on the keyboard. Deleting this icon does not erase the program; the icons in Program Manager are just the "front door" to it.

AUTOMATIC LOGGING-IN AND LOADING DESKTOPS

You may want SADiE to start with a particular desktop file that you have previously saved, particularly if you have changed screen resolution. You can also set the log-in process to be done automatically when SADiE boots up.

The icon that you select to run SADiE contains instructions to run the program. These take the form of a command line, to which you can add the desktop to be used, and your user name and password.

To modify these instructions:

DESKTOPS

The arrangement of windows and toolbars (groups of buttons) on your screen is called a desktop. As described below, this can be saved as a file, just like an EDL. You can save several different desktops for different tasks and then reload them to quickly rearrange the screen whenever you want. Note that a desktop will not look the same when viewed with a different screen resolution. Several desktops files are provided with the software.

ARRANGING WINDOWS

Moving and Resizing windows with the mouse is covered in *Appendix A - Windows Basics*.

The Window menu has the following commands which are standard for Windows® applications:

- **Tile** will attempt to fit all open windows onto the desktop - not especially useful in SADiE
- **Cascade** will arrange all open windows on top of each other, with all the title bars visible.
- **Arrange icons** will align the symbols for minimised windows along the bottom of the desktop. Again, not especially useful unless you have lots of minimised windows.
- The list at the bottom of the menu shows all open windows and is useful for quickly restoring to size a minimised one, or making active (and so bringing to the top) an obscured one.

SPLIT AND DUPLICATE WINDOWS

The Window menu's **New Window** command creates a duplicate of the active window so that you can effectively split it and place different parts in different places on your desktop.

For example, you may have a very large Mixer of, say 24 channels (especially if you are an **octavia** user). You could put the first 12 channels in the top half of the screen and the rest below. Or, if you are using a dual graphics card to spread the desktop across two monitors, channels 1-12 on one screen and 13-24 on the other.

You might want to have two Playlist windows, one looking at one part of the EDL, and the second at a different part. You can also create a quite separate Text EDL window like this.

- Make the window you want to duplicate the active one.
- Select **New Window**. An exact duplicate will be displayed.
If duplicating the Playlist, you have the option of a new Playlist or Text EDL.
If duplicating the Mixer, you have the option of a new Mixer or Process window.
- You can now resize the two duplicates and use their separate scroll and zoom functions so that they display the bits that interest you.
- Move the new windows where you want them on your desktop, which can then be saved as described below.

TOOLBAR DISPLAY

The various toolbars used in SADiE can be attached to different parts of their windows or floated and moved around the screen.

Right-click over any toolbar to see the list of options:

- Each toolbar can be docked to either of the four sides of its window.

- The toolbar can be floated, in which case it becomes a separate, "always-on-top" box that can be positioned anywhere on the desktop. A floating toolbar can also be re-shaped by dragging its sides in or out.
- Each toolbar can also be hidden, so that it doesn't appear on the desktop at all. To redisplay a hidden toolbar, look under the View menu, where the "Toolbars" command will let you select which toolbars are displayed.

NOTE: The Transport Controls are a special toolbar that cannot be reshaped or docked. They can, however, be displayed or hidden under the View menu.

SAVING AND LOADING DESKTOPS

To save the current arrangement of your desktop (which includes the size and position of all windows, even if they are not currently on view), select "Save Desktop" from the Desktop menu. The save box that appears allows you to give the new desktop file a name and open the folder that you want it saved in. There is a folder for Desktops within the main SADiE3 folder.

To load a previously saved desktop select "Load Desktop" from the Desktop menu and find it in the relevant folder. Alternatively, select it from the list of recently used desktops at the bottom of the Desktop menu.

TIP: When editing the Playlist, you may want to quickly switch between two different vertical and horizontal zoom settings. Save them in two different Desktops. Then switch between them by using the keyboard shortcuts to the Desktop menu:- Simply press Alt + D, followed by the number of the desktop file in the list.

You can load any of the five suggested desktops, which are provided in the Desktops folder, for each of the following screen resolutions:

800(x600), 1024(x768), and 1280(x1024).

The resolution forms the first part of the filename. Desktops with a "o" after the resolution are for **octavia** users.

There is a general "Default" desktop, which will be the one loaded when you start SADiE, two editing desktops, one for mixing and one for PQ editing.

There is also a single "Default" desktop for 640x480 resolution.

CHANGING SCREEN RESOLUTION OR - WHY DOES MY SADiE LOOK DIFFERENT?

A PC's display is a grid of coloured squares each called a **pixel**. Most PCs can display at different screen resolutions - in other words, a different number of pixels across the same size screen. A high screen resolution of 1024 pixels horizontally by 768 pixels vertically will use smaller pixels than a resolution of 640 x 480. This means the elements of any display will appear smaller, yet you can fit more onto the screen.

The choice is down to your personal preference for the size of monitor you are using. SADiE can work equally well at either 640x480, 800x600, 1024x768 or even 1280x1024. It's worth bearing in mind that the PC will be working harder if you increase the resolution, so the display may be slower to refresh. Another factor that can change the speed of operation is the number of colours. SADiE only uses 16 colours, and so if you set the display driver to use 256 or more colours, it is processing numbers unnecessarily and could work slower. Some display cards, however, are optimised to run at a certain resolution and number of colours, so there is no hard and fast rule.

HOTKEY SETUP

	Here you can set a wide range of computer keyboard key-presses and hardware controller buttons to duplicate on-screen commands, so avoiding the use of a mouse.
Categories	First select the window in which the Hotkey will operate. Remember that Hotkeys set for the Transport Controls will affect other windows.
Commands	Select the command you want to check or assign to a new Hotkey.
Hotkeys assigned	This box will list what Hotkeys are currently assigned to the selected command.
New Hotkey	<p>Select a key by scrolling down the box and tick the Ctrl, Shift or Alt key(s) to be pressed in combination with it. The keyboard function keys F1-F12 can also be used <u>without</u> Ctrl, Shift or Alt.</p> <p>For hardware controller buttons, select HWC F1-F12 and tick HWC Shift and/or HWC Assign if they are to be used in combination.</p>
Assign	Adds the selected New Hotkey to the list of those assigned to the command.
Remove	Removes the selected item in the Hotkeys assigned box from the list assigned to the command.
Reset All	Resets <u>all</u> Hotkeys in SADiE to the standard factory defaults.
Dump Keys	Allows you to save the current Hotkey settings to a text file so that you can print it out. Note - these dumps cannot be reloaded - this is a job for <i>SADiE Settings files</i> .

CLIP DETAILS SETTINGS

Write back Clip on exit	Automatically writes back the changes you make in a Clip Details window when you close it.
-------------------------	--

PLAYLIST AND MIXER TEMPLATES

The **TEMPLATES** feature allows you to further customise your working environment, by allowing you to easily save custom Playlists and Mixer Setups for future use.

In normal use you will save Playlists and Mixers but these will contain other information - EDL entries, Fader levels and pan and EQ settings for instance, which are of no further use. Once you have customised a Playlist or Mixer, if you save it as a **TEMPLATE** you can use it again and again.

For instance you may always require a playlist with 2 mono streams and 1 stereo, with a mixer that has perhaps 2 mono and 1 stereo strips with an EQ and maybe a reverb. If, having constructed this blank playlist and mixer, you save them as template files, you can set SADiE to use these for the defaults.

To save a Playlist or Mixer as a template select the option under the **FILE** menu : **Save current playlist (or mixer) as a template**.

The files will be saved with a **EDT** or **MST** extension.

If (and only if) you are working in a Project, you can enable Templates in the Templates Setup Page (which is a sub-section of Project Management Setup).

The three options for using templates are:

1. **Do not use templates** - this is the default choice. Templates are disabled, and the type of EDL/mixer that is created when you make a new EDL/mixer is determined by the Setup page options. See *Playlist Setup* and *Mixer Setup* above
2. **Use the specified templates below** - In this setup page you can choose a single EDT Playlist template, and MST Mixer template, which will automatically be used as the basis for your Playlist and Mixer EVERY time you create a new Playlist and Mixer - either using the **FILE** menu/ **NEW** function or the **CREATE EDL** and **CREATE MIXER** buttons in the Project window.
3. **Choose a template at playlist or mixer creation time** - when you create the new EDL/Mixer, SADiE will ask you to name the file in the usual way, and then offer you a list of all the available templates files that appear in your own template directory.

NOTES: Templates are saved and reloaded on a user basis - i.e. the user 'Joe' will find his templates in c:\sadie3\templates\joe (assuming c:\sadie3 is the normal working directory for SADiE).
You will notice that if you press **CANCEL** (or press the **ESC** key) you will bypass the template and the new EDL/mixer will be based on the Setup page setting. You will also notice that you will be first offered the template that was chosen last, and so you only need to press **RETURN** to use that same template again.

Auto write back to Playlist	Entries currently in the Trim Editor are automatically written back when the RAZOR-CUT, the LOAD NEXT EDIT or LOAD PREVIOUS EDIT buttons are used.
Double click opens Clip details	Double-clicking on the relevant profile does just that!
Stop automatically when cutting with the razor	applies when razor-cutting during normal playback.

TRIM/TRIM EDIT NUDGE

	Sets the amount by which edit points are nudged <u>either in Playlist editing, or the Trim Editor</u> .
Nudge amount	applies to the on-screen nudge buttons (in the transport controls or Trim Editor), and the Transport Control Hotkeys.
Alt + Nudge amount	applies to the on-screen nudge buttons (in the transport controls or Trim Editor), when holding down the Alt. key. Zoom dependent settings mean that the higher magnification you use, the finer the nudge adjustment

MIXER SETUP

Select PPM scale	Selects the scaling of the PPM level meters in the Mixer. Scales 1-3 emphasise different areas of the dynamic range and are calibrated in dBFS (decibels with respect to 0dB, which is maximum coding level). The BBC scale is numbered 1-7, with green segments up to PPM4, then yellow segments up to PPM6 and red above PPM6.
Default Mixer	Tick the box and set the indicator numbers if you want to specify the layout of mono or stereo strips when new Mixers are created. Otherwise, SADiE will generate Mixers with 8 mono Streams strips and 2 mono output strips (16 Streams strips for octavia systems). See also <i>Playlist and Mixer Templates</i> below.
E to E mode	When selected, E to E mode gives you input monitoring on record-enabled Streams before you press the record button. E to E is cancelled when record is disabled on the EDL stream.

UNDO SETUP

Enable undo	Strongly recommended! In fact, there is really no reason not to use it. You can set any number of undo levels up to 50. More levels use slightly more disc space in the PC.
-------------	---

DEFAULT CROSSFADE SETUP

	Sets the fade curves and lengths that are created at the beginning and end of Clips after recording and when using the razor-cut function. The normal default is around 40 subframes (20 milliseconds).
--	---

9-PIN CONTROL

	These settings are described in full in the section on 9-pin control in Chapter 8, <i>Specific Applications</i> .
--	---

TRANSPORT CONTROLS SETUP

Loop pre/post-roll Sets the amount played either side of the Left and Right locator points when the LOOP button is used.

TRANSPORT CONTROLS/SCRUB SETUP

- Mouse Jog ratio** Sets how much the audio is scrubbed for a given horizontal mouse movement. Default setting 040.
- Mouse Jog Damping** Sets how quickly the audio comes to a halt when jogging. Default setting 80.
- Mouse Shuttle sensitivity** Sets the speed of shuttle for a given vertical mouse movement.
- Fixed Scrub Speeds** Set three fixed shuttle speeds used by the Hotkeys for forward and reverse scrubbing.

AUTOCONFORM SETUP

See the Autoconforming section in chapter 8, *Specific Applications*.

PQ SETTINGS For a full description, see the CD Pre-mastering section of Chapter 8, *Specific Applications*.

PQ DISPLAY

- Enable PQ editing in the Playlist** Allows PQ flags to be inserted or moved with the mouse.
- Auto-show the PQ Playlist Stream** The Playlist will automatically open the PQ Stream displaying PQ flags, when the EDL is loaded.

PQ FACILITY: The country code and owner code entered here will form part of the ISRC number that can be generated for each CD track. Production details can also be entered for the printout of the PQ list.

PQ BURST: Sets SADiE's input channel for reading a PQ burst, and the output channel and level used when writing a PQ burst.

PQ OFFSETS: Sets the length below which all countdowns will be removed when using the NORMALISE button.
Sets the parameters for applying offsets to the PQ Entries.

NOTE: The offsets set here are applied to a PQ list from the moment you start creating it. From then on, they are held in the EDL and changing these settings will not change the current PQ list. Be sure that you set them as you want before you do lots of intricate PQ editing! - This is different from SADiE version 2.

PQ FLAGS: Sets the parameters used when automatically generating a PQ list, and when adding new track flags.

AUDIO / FURTHER AUDIO SETTINGS

- Clock Source

Sets what digital audio clock is used as the reference for generating SADiE's sample rate:
- Automatic

When a digital input is in use (either for recording or routing to a Mixer input strip), the clock is derived from that. When no digital input is in use, SADiE's own internal clock is the reference. This is the usual setting, unless you are recording from a digital device that needs to take its clock reference from SADiE (e.g. bouncing through an external digital processor or mixer), in which case they would each be trying to follow the other, so you must use SADiE's Internal setting:
- Internal

Internal clock used at all times.
- Genlock

External clock reference used at all times (except with XS/XACT systems when using an analogue input, as the digital signal cannot then reach the XS card). This setting is for those who use a station clock to reference all their digital equipment.

XS/XACT clock source	WITH DIGITAL I/P IN USE	WITH ANALOGUE I/P IN USE	WITH NO INPUT IN USE
Automatic	selected digital input	internal	internal
Internal	internal	internal	internal
Genlock	selected digital input	internal	selected digital input

octavia clock source	WITH DIGITAL I/P IN USE	WITH ANALOGUE I/P IN USE	WITH NO INPUT IN USE
Automatic	lowest numbered digital input in use	internal	internal
Internal	internal	internal	internal
Genlock	AES reference input	AES reference input	AES reference input

- Output Format

Selects whether SADiE produces digital output signal to the SPDIF or AES/EBU protocol. The selected format is actually supplied to both the phono connectors on the XACT card and the XLR connectors on the Breakout Panel.

SYNC. SETUP

These settings are described in full in the section on Synchronisation in Chapter 8, *Specific Applications*.

PRE/POST ROLL SETUP



Here you can set how much SADiE plays before (pre-roll) and after (post-roll) an edit when you use the preview buttons in the Transport Controls or Trim Editor. These times also apply to the preview buttons in the PQ editor.

Three alternative times are available: using the preview buttons alone, with the Shift key and with the Ctrl. Key.

PLAYLIST SETUP

- | | |
|---|--|
| No. of Playlist Streams | Tick the box and set the indicator number if you want to specify how many Streams new Playlists are generated with. Otherwise, SADiE will generate Playlists with 8 Streams for XS/XACT systems and 16 Streams for octavia systems. See also <i>Playlist and Mixer Templates</i> below. |
| Cut Mode | Determines the joins created between Entries when the Razor-cut is used: |
| Splice | Fade-out of first Entry overlaps fade-in of next (a crossfade). |
| V cut | Fade-out ends where fade-in starts. |
| Stop automatically when cutting with the razor | applies when razor-cutting during normal playback. |
| Autolocate on cut | means that <u>when SLIP is on</u> , cutting an Entry from the Playlist will reposition the current time cursor so as to take account of the slip. To be used in conjunction with the above. |
| Double click opens Clip details | when double-clicking on the Playlist Entry. |
| Auto load new EDL into current Playlist if empty | If your current Playlist is empty, opening an EDL file will load it into the empty Playlist instead of creating another one. |
| Autoplace options | The time display is used to set the gap between Entries when using the "Autoplace with Separation" option. |
| Use Fades | When selected, the gap length includes the fade-out of the earlier Entry. |

PLAYLIST SETUP/PLAYLIST DISPLAY

- | | |
|-----------------------------|---|
| Stream comment space | Choose between displaying the “comments” or “dialogue” that can be written in the Clip Details window. |
| Fade display mode | Entries drawn with fades as splices: 
Entries drawn with fades as cuts:  |
| PPMs in Playlist | Turns on or off the miniature meters on the left of each Stream. |

PLAYLIST SETUP/PLAYLIST NUDGE

- | | |
|-------------------------|--|
| Nudge amount | Sets the amount by which Playlist Entries are nudged with the button on the Autoplace toolbar, or the Hotkeys. |
| Alt+Nudge amount | Sets the amount by which Entries are nudged when holding the Alt key and using the Autoplace buttons. |
| | Zoom dependent settings mean that the higher magnification you use, the finer the nudge adjustment |

TRIM EDITOR SETUP

- | | |
|-----------------------------|--|
| Playlist Auto Follow | When selected, the current-time cursor in the Playlist will move to keep up with the latest edit point in the Trim Editor. |
|-----------------------------|--|

9 - CUSTOMISING SADiE

SETUP WINDOW

The Setup window can be displayed under the View menu and allows you to change many settings that affect the way SADiE™ is working. These are stored in a file called SADIE3.INI which is used by Windows® to recall them whenever you run SADiE.

The settings are grouped under topics that can be selected from the list in the left-hand part of the window. Double-click on topics with a + next to them to reveal sub-topics for selection.

The window is fully interactive - so you can leave it open and make changes while using SADiE. Options that are currently not available (like changing sample rate while recording) will be greyed out.

GENERAL SETUP

Time Format	Selects the format for all time displays.
Timecode	Hours : Minutes : Seconds : SMPTE frames : SMPTE subframes
Milliseconds	Hours : Minutes : Seconds : Milliseconds
Samples	Hours : Minutes : Seconds : Samples
CD	Hours : Minutes : Seconds : CD Frames
Bars and beats	Bars : beats : ppqn (parts per quarter note)
Time Format Settings	Allows you to set the Tempo, Time signature, and ppqn for the Bars and beats display.
Popup Help	Enables the yellow pop-up captions when resting the mouse pointer over a button.
Warning Messages	Allows a choice of four different settings. Display all messages until you are familiar with using SADiE
Message Box Placement	Allows you change the position on the desktop at which messages, warnings and errors appear.

GENERAL / STATUS DISPLAYS SETUP

Status displays 1-5	Let you choose which displays of important settings are shown in any of five positions on the Status bar at the bottom of the screen. You can display any of the following:
Sample Rate	Double-clicking on the display will take you to the relevant part of the Setup window to change the setting.
Frame Rate:	As above
Transport Ctrl:	Simple Play and Stop buttons and current-time display. Use as you would the main Transport Controls which you can close to save screen space. Double clicking in the time display allows you to change the current time in the playlist. Also, clicking and dragging any digit up or down, increments or decrements that digit and hence moves the current time.
Autoplace:	Right-click on the display to change Autoplace settings.
Slip:	Right-click to change Slip settings.
Input Source	Double-clicking on the display will take you to the Audio Setup page, to allow you to change this.
Clock Source	Double-clicking on the display will take you to the Audio Setup / Further Audio Settings page, to allow you to change this.
Input Res	(input resolution) Double-clicking on the display will take you to the Audio Setup page

Output Res	(output resolution) Double-clicking on the display will take you to the Audio Setup page
Tempo	Double-clicking on the display will allow you to alter the tempo directly without having to go to the General Setup page.
Varispeed	Double-clicking on the display will take you to the Audio Setup page
Output Format	Double-clicking on the display will take you to the Audio Setup / Further Audio Settings page.
Record Format	Double clicking on this has no effect - this is display only.

Display Titles When selected, each display shows its description in full.

AUDIO SETUP

Input Source	Select which physical inputs are active for routing and recording.
Input Resolution	Select the sample resolution (how many bits per sample) of the input. For analogue input, XS/XACT converters are limited to producing a 16-bit signal, octavia system converters can convert at 20-bit resolution. For digital input, set to match the input data, unless you want to reduce the resolution.
Sample Rate	Sets SADiE's working sample rate, for recording and playback. Obviously, SADiE can only replay audio at one sample rate at any time, so if you mix Tracks recorded at different sample rates in the same EDL, one of them will be replayed at the wrong rate and sound speeded up or slowed down. Selecting Varispeed allows you to vary the sample rate for special effects.
Output resolution	Sets the output resolution at the digital outputs, or supplied to the digital-analogue converters, which on XS/XACT systems are limited to 16-bit, on octavia systems to 20-bit. No point in setting this higher than the material you are replaying.
Default record disk	Only applies to recording <u>outside any Project</u> . When recording within a Project, there is a separate disk selection in the Project window's Tracklist.

Cue Points


SADiE will recognise any cue points that were recorded by the GX8000. These can be displayed by right mouse clicking on the entry in the EDL. There is an option to **SHOW CUE POINTS**, which will change the height of the stream a little. The cue points will be shown underneath the EDL entry. To locate to cue points, there are two self explanatory hotkeys - **LOCATE TO NEXT CUE POINT** & **LOCATE TO PREVIOUS CUE POINT**. These are setup in the Playlist section of Hotkey Setup.

Note that the cue points are embedded in the audio track and thus mark source times unlike Locators which mark EDL times.

Saving Projects to the GX8000

It's possible to reserve a small area of the GX8000 MO disk for SADiE to write to by setting a SADiE partition. This can be used by SADiE for saving project components (EDLs, Mixers, Clipstores etc.) to. This way the audio material and SADiE's edit information can be kept for archive purposes on the same disk.

To backup you project to the GX8000:

1. Make sure that the GX8000's Internal MO disk is logged in SADiE's Disk Management - instead of reporting 'unrecognised format' as when the MO disk has no SADiE partition, SADiE will see the partition - calling it 'SADiE on Ge'
2. SADiE always backs up the project components to the disk which is set for recording to -
press the  **Select Audio Disk** button in the Project Window, and now select the 'SADiE on Ge' disk.
3. Now, from the **Project** menu, select **Backup Project**. Select the first option: **Backup project components to the audio drive** and press **OK**. The components will be saved to the project directory on the GX8000 MO's partition.

To restore the project, as long as the 'SADiE on Ge' disk is logged, then selecting **Restore Project** from the **Project** menu, and choosing **Restore project components from the audio drive**, will offer you the project.

Important notes on operation of Genex GX8000

The GX8000 does not behave exactly like a normal disk drive, and so some things you may take for granted with disk drives are not possible.

It's particularly important not to power down the GX8000 while it is attached to SADiE and the SADiE software is running. This will fatally crash SADiE's SCSI bus. The only way to reset it is to power everything down and start again.

Similarly it's inadvisable to eject the MO cartridge, or to switch the GX8000 out of or back into DAW LINK mode while the SADiE software is running.

If you want to power down the Genex, remove or replace the MO disk, switch the Genex out of DAW link mode or back into link mode, then you **must** exit SADiE beforehand. If you follow this rule then you will be able to re-enter SADiE when you have put the GX8000 back into DAW Link mode, without having to power down the PC.

- Record-enable the presenter Stream, and play the first insert. Drop into record (by pressing the record button) just before it ends, and the presenter can pick up straight away with their link.
- While they are reading the link, pull the next insert out of the Clipstore, (if using a mouse, have it hovering over the correct Stream, with your finger still on the button) and paste it in on cue. Autoplace will position it for you. As SADiE is playing an EDL that doesn't know the Clip is there yet and you won't hear it immediately, so
- Stop playback, and re-start from just before the new insert (with the mouse you can do this in one go, by double-clicking in the time bar).
- You are now ready to drop into record at the next link, and repeat the above.
- After recording, the whole programme is in order, with the joins between links and inserts very likely to need no more attention. You can go through checking them and editing any presenter fluffs.

The great advantage of this is that the Presenter can hear and respond to each insert, and you get the flow of the programme. The slight delay (four or five seconds, tops) that everyone hears between each link and the following insert should not be much of a problem.

ROCK-AND-ROLL RETAKES

It's easy to record this way with SADiE:

If the artist fluffs, stop recording but keep the voice-over Stream(s) record-enabled. You can play back their last few words and drop in by hitting the record button on the fly.

If the drop-in doesn't sound too good, don't worry - you haven't lost any of the previous take! The join between the two Playlist entries at the drop-in point is an edit that can be adjusted like any other. The previous take is there for bits of it to be pulled back in.

MUSIC EDITING

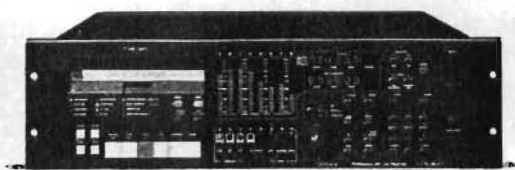
MULTIPLE TAKES

If the material is recorded to sync or keeps a steady tempo, you can place multiple takes on different Streams and use the solo buttons to switch between them.

Then make your razor-cuts at the edit points, delete the out-takes and swap sections from other takes using Autoplace Butt. If you used synchronisation when recording into SADiE, different takes will share a timecode reference and you can use Autoplace by Track time.

Tidy up the edits with Playlist Editing, or the Trim Editor.

GENEX GX8000



SADiE includes support for the Genex GX8000 magneto-optical disc recorder. This unit records up to 8 tracks of 44.1 or 48KHz audio at up to 24bit resolution, or 4 tracks of 96KHz / 24 bit onto MO cartridges. The GX8000 has a SCSI interface which can be connected to SADiE's SCSI bus so that SADiE can read the audio tracks directly for editing and so you don't have to copy the tracks into SADiE in real-time via AES/EBU.

1. Connect the GX8000 to SADiE's SCSI bus. Take care over termination and make sure that there is no SCSI ID conflict. The GX8000 takes TWO SCSI IDs - one for its MO drive and one for the GX8000 itself. You can find out which are in use by looking through the GX8000's setup - **Int SCSI ID** is the ID the MO is set to; **DAW SCSI ID** is the ID of the GX8000 and is the ID that SADiE will 'see' the GX8000 at.
2. Set the GX8000 to **DAW LINK - SADiE**. This disables all the front panel controls on the GX8000 and allows the disc to be logged in SADiE
3. Start up SADiE and log the GX8000 on the ID set for **DAW SCSI ID**. You will not be able to log the MO drive itself - SADiE will report 'Unrecognised drive'.
4. In Disc manager you will see a SADiE track for each GX8000 track up to a maximum of 8 - depending on how many tracks the MO is set up for. Note that the GX8000 only has one file per channel, and when you stop and start recordings, you are appending the 8 files, rather than creating extra ones.
5. The GX8000 tracks can then be imported into a clipstore in the usual way, and dragged into an EDL and played as any clip.

The MO drive of the GX8000 is of lower performance than a standard hard disk, and depending on your SADiE hardware platform, you may find that during playback, SADiE will report 'Disk too slow'. It is usually possible for SADiE to playback up to 8 simultaneous, continuous tracks from the GX8000, but edits may make the EDL unplayable in some cases.

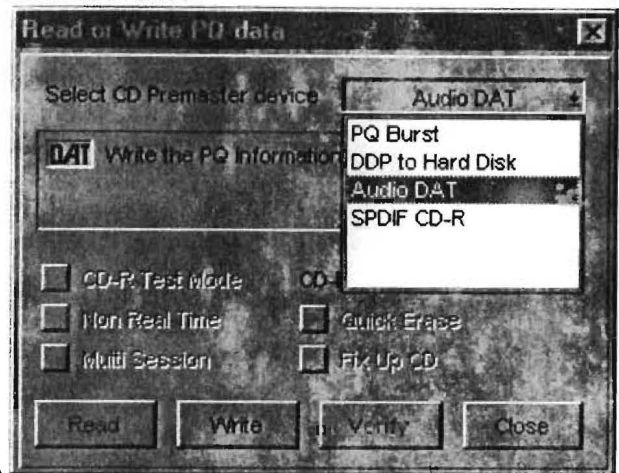
Depending on the complexity of your work with the GX8000, you may find it's better to copy the tracks onto a normal hard disk. This will give you the normal performance and make edits play correctly.

To copy the GX8000 tracks to a SADiE hard drive - use the usual 'drag and drop' in Disc Manager. The speed will be a little slower than a normal hard disk to disk copy, but faster than a real-time AES/EBU transfer.

Profiles

GX8000 tracks can only be viewed in Profile view in SADiE if the GX8000 has been set to record profiles - **Profiles ON** in the GX8000 setup. Otherwise, they will appear empty.

4. You can use the PQ editors preview buttons to check your list if you wish.
5. Once you have marked the track starts, you are now ready to play the EDL to DAT (or CD). Make sure that SADiE's output format is set to SPDIF.



Now press  READ/WRITE PQ DATA

Against SELECT CD PREMASTER DEVICE select AUDIO DAT (or SPDIF CD-R).

Pressing the WRITE button will start the playout. You will first get a message telling you put the DAT or CD-R into record, and on pressing OK, the playout will start. The EDL will be played until you stop it with the transport controls or until it reaches the point 10 seconds after the END OF CD flag.

Notes on SPDIF CD-R recorders

In SPDIF CD-R mode, before you press OK to start the playout, SADiE is in a 'paused' condition and is not clocking the SPDIF output. When the playout starts, the clock sets, and the CD player subcode is started. Some CD-R recorders can take this as a signal to start recording, in which case the track start flag for Track 1 will be in the correct place.

Other recorders will make the first track at the point you press record, and will start to record immediately. If you start SADiE playing out within 5 seconds of starting the CD-R recorder, then no new track flag will be made; if you wait until after 5 seconds, then the EDL's track 1 will be track 2 on the CD - timings will however be accurate. Similarly, at the END OF CD flag, SADiE does send the correct flag, but some CD-R recorders will not recognise the flag. Others will see this flag and stop the recording automatically.

RADIO PROGRAMMES

EDL START TIME

If you are not synchronising to timecode, it might seem logical to start the first Entry in your EDL at 00:00. However, this makes it more difficult to start playback from the beginning by using the mouse in the time bar, and it also prohibits the SLIP function from moving any Entries to the left. If you start the EDL at 00:01:00 or 01:00:00, you will leave plenty of room to the left and can easily subtract one minute or one hour from the current-time display to get an idea of your running-time. You can do this at any time by moving all the Entries along, with SLIP on.

USING CLIPSTORES AS YOU RECORD

If you are using SADiE to assemble a programme from lots of material that is on another medium, and not in the correct order, it may be most convenient to dedicate a Clipstore to the programme, and work from that.

Say you have a ¼" tape or DAT with many inserts. You can record them into your Playlist in one go, but use the razor-cut between each to create separate EDL Entries. Whilst recording continues, you can rename each with a name relevant to the material (right-click over the Entry in the Playlist), then select it and save it to the Clipstore.



Then, rather than re-ordering the Entries in the EDL that has just been created, open a new Playlist, pull Clips out of the Clipstore and paste them into it in the required order. Have Autoplace (butt) on and they will butt up together as you drop them in, and you can use Playlist Editing to fix each join later.

PICKING THE GOOD BITS

You didn't mean to, but it happened again... you came back to the office with two hours' worth of material on tape and the interview needs to be six minutes maximum!

Record it all into SADiE, whilst having a listen and getting an idea of where the good bits are. Then, with the whole interview on Stream 1 (or 1&2, or whatever), you can scrub-and-cut to identify the rough bits you want to use. Rather than remove the rest, drag out the bits you like and paste them onto the next empty Stream(s). Have Autoplace (butt) on and they will join up together.

You can now keep referring backwards and forwards between what you are picking and what you're leaving behind. Use the solo buttons on the Streams to choose which you are listening to.

LIVE COMPILING

You can make a very good approximation to the old way of recording a programme of pre-recorded inserts linked by a live presenter:

- Have all your inserts ready topped and tailed in a Clipstore. If you put a number in front of their name, they will be listed in the correct order for the programme. Enable Autoplace-at-current time and have Autotake on in the Transport Controls.
- Decide which Stream(s) you are going to use for inserts, and which for the presenter(s).
- If the programme starts with an insert, paste it into the Playlist.

DAT & CD IDs

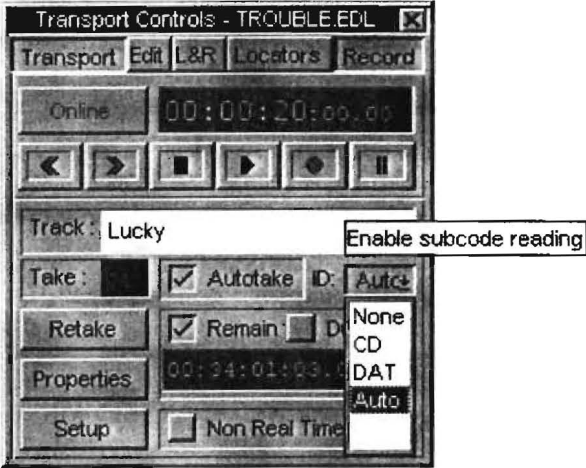
DAT & CD IDS ON AN INPUT

SADiE can be set to recognise subcode on an SPDIF digital audio signal. When a DAT ID or CD Track ID is read while recording to an EDL, SADiE will automatically perform a razor cut on the entry so as to mark it and divide the recording into separate entries for separate tracks on the DAT or CD.

To enable this feature, press the button marked ID on the Transport Controls to choose between:

- NONE turns the function off.
- CD subcode reading will only be turned on for CD subcodes.
- DAT subcode reading will only be turned on for DAT IDs.

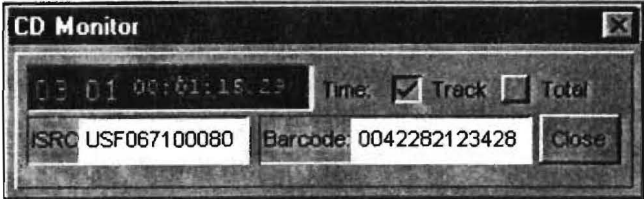
AUTO subcode reading will be turned on automatically when either a DAT or CD is recognised.



Note : CD and DAT IDs are only output on an SPDIF signal and there is no standard place for them in the AES/EBU subcode. SADiE’s format setting is unimportant - SADiE will recognise SPDIF or AES/EBU audio whatever SADiE’s output format is set to, and whatever (digital) connector it is input into. View the Input Monitor Window for more information about the signal on a digital input.

CD Monitor Window

On recognising CD subcode, SADiE performs a razor cut at a track start, but additionally, , the CD Monitor Window will pop up. This can also be shown by selecting it under the VIEW menu.



This gives details about the CD - the track number currently playing, how long it has played for and time remaining. Also there is a display for the track's ISRC code and the CD's mode 2 bar code.




DAT & CD IDS ON AN OUTPUT

SADiE can output DAT IDs or CD track starts on the SPDIF digital output. The **OUTPUT FORMAT** (in Setup; Audio ; Further Audio Settings) **must** be set to SPDIF for this to work, but the signal will appear on both phono/optical and XLR connectors for outputs 1 & 2.


There is no provision in the AES/EBU stream for either DAT IDs or CD track starts.

The use for DAT IDs is obvious; CD track starts less so perhaps - this is for use with audio CD recorders - when these devices see a CD on their digital input that is changing track number, it causes them to put a new track start on the CD-R. Therefore SADiE will emulate a CD player and output tracks starts at the appropriate time.

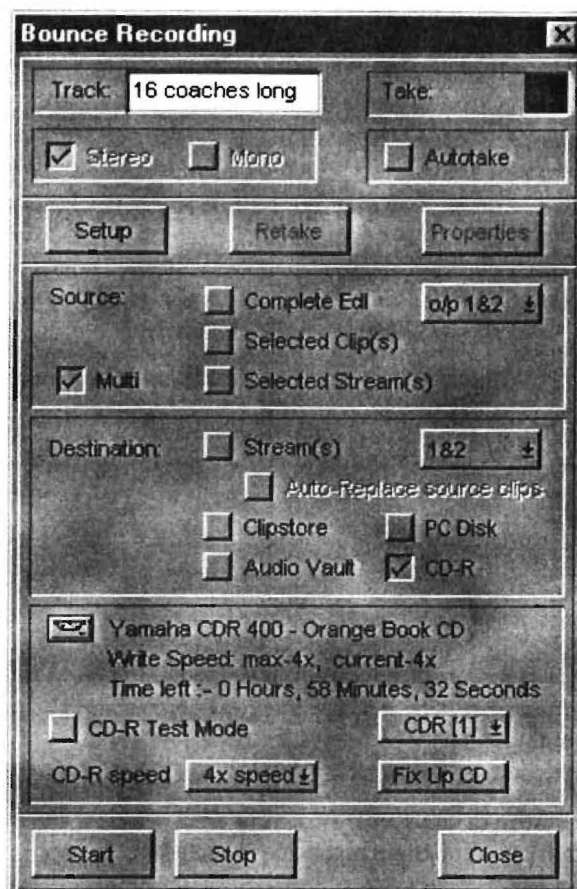
The positioning of the DAT or CD IDs is set in the PQ editor. It will help to have an understanding of the PQ editor, but the following gives you a brief description of how to prepare your EDL for DAT IDs. The procedure for CD tracks starts is identical.

1. Open the PQ editor by pressing the  **SHOW TEXT PANE** button on the EDL, and select the PQ tab. This will also reveal the PQ stream above the playlist. If there is no PQ stream, this is because you have PQ disabled for this EDL - you will have to turn it on in the PQ setup page, and then create a new EDL.
2. The next step will depend on your EDL. The simplest way to make a PQ list is by using the  **GENERATE PQ** button, which will place a flag on the beginning and end of every entry in the list. There are some settings under 'PQ flags' to make this generate a more suitable list, but if, for instance you have several edits in each track, one way of making the EDL match the way you want the DAT IDs to happen, is to use the  grouping function to group entries together into one entry per track. Then pressing the **GENERATE PQ** button puts flags on the beginning and end of every track.

Note: Only track start flags - marked as Track *n* ID 1 - are used for DAT and CD IDs - all others, including the end flags - ID0 - are ignored.

3. Alternatively you can hand-place PQ flags. Make sure the  **INSERT TRACK** is pressed in on the top left side of the EDL. Then when you click in the PQ stream a PQ track start flag (and its associated 'previous track end' flag) will be placed at the position you clicked. These flags can be adjusted by hand - if you hover over a flag with your mouse, the mouse cursor changes to a 'hand' and then you can click and drag the flag to a new position. Additionally, position the current time cursor where you want a flag to be moved to, and then right mouse clicking over the flag gives you the option to **SNAP PQ INDEX TO CURRENT TIME**. The only important flag other than the Track *n* ID 1 is the **END OF CD** flag. This will be placed at the end of your last entry when you use **GENERATE PQ** or 1 hour after the first flag you manually drop into the PQ list. This flag is used to stop the playout and so if you have any entries after the **END OF CD**, they will not be played

Note: The first track's flags cannot be dragged by more than a 1 second. The reason is only relevant for full red book PQ lists. If you want to move the first track flags, then you have to use the **SNAP PQ INDEX TO CURRENT TIME** method.



This section shows information about the CD recorder and the disc, and allows to change some settings for the track you are about to record:

CD-R TEST MODE - this sets the laser to low power and so SADiE will go through the motions of recording the track, without actually burning it to the disc. This is useful in case you want to check to see if the system is fast enough to write at the chosen speed. After using Test mode, some CD-recorders need to be powered down and up again to reset the laser to full power again.

CD-R (1) in the diagram above shows you which SCSI device (1 in this case) you are using.

CD-R SPEED sets the speed for the recording. It's advisable to calculate whether your system is capable of the speed you've set before recording. CD-Rs have to be recorded in a constant stream and so if SADiE cannot deliver the audio continuously at the set speed, the CD-R recording will stop and the disc will be wasted. If for instance your SADiE hardware is capable of playing approximately 8 tracks in real-time, then it's unlikely to be able to achieve more than 2 tracks at 4X speed. Processing and crossfades will have an affect too. If in doubt, try Test mode first.

Fix Up CD - pressing this button will fix up the CD. You will not be able to add any more tracks to the CD after fixing it up, but you will be able to play it in a normal CD player. There are other places in SADiE to do this - in the 'Read / Write PQ Data' window, available from the PQ toolbar, and also in Disc Manager.

When you are ready to record the track, press **START** and the recording will proceed. Note that with **SOURCE** set to anything other **MULTI** will write just one track to the CD-R, but the **MULTI** option will create a separate track for each entry in the EDL.

Playing Orange Book CDs

Note: You cannot log tracks off an orange book disc in a Yamaha CDR-100 and therefore you will not be able to play the disc with SADiE, until it is fixed up. This is possible with a Yamaha CDR-400 drive. You may not be able to log tracks created with another recorder.

If the CD-R drive allows it, Orange book CDs can be logged in the usual way in either Disc Manager or from the PQ data window - available from the PQ toolbar.

Logging the disc in Disc manager will show each track separately, and these can be imported into the project via the clipstore, and then dragged into an EDL like a normal clip.

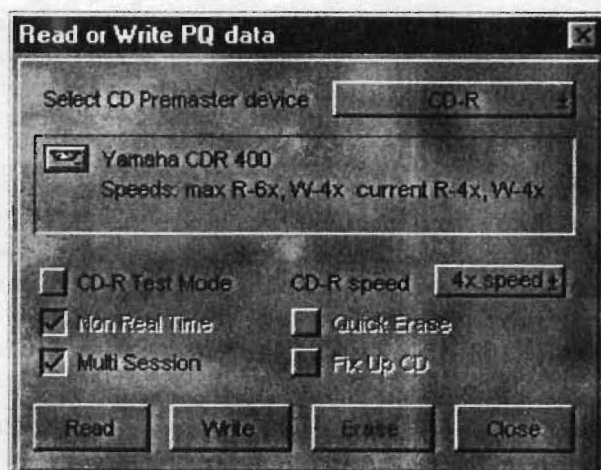
If you are able to log the disc in the PQ data window (press READ) then the track start flags for each existing track on the disc will appear in the current EDL.

MULTISESSION CDs

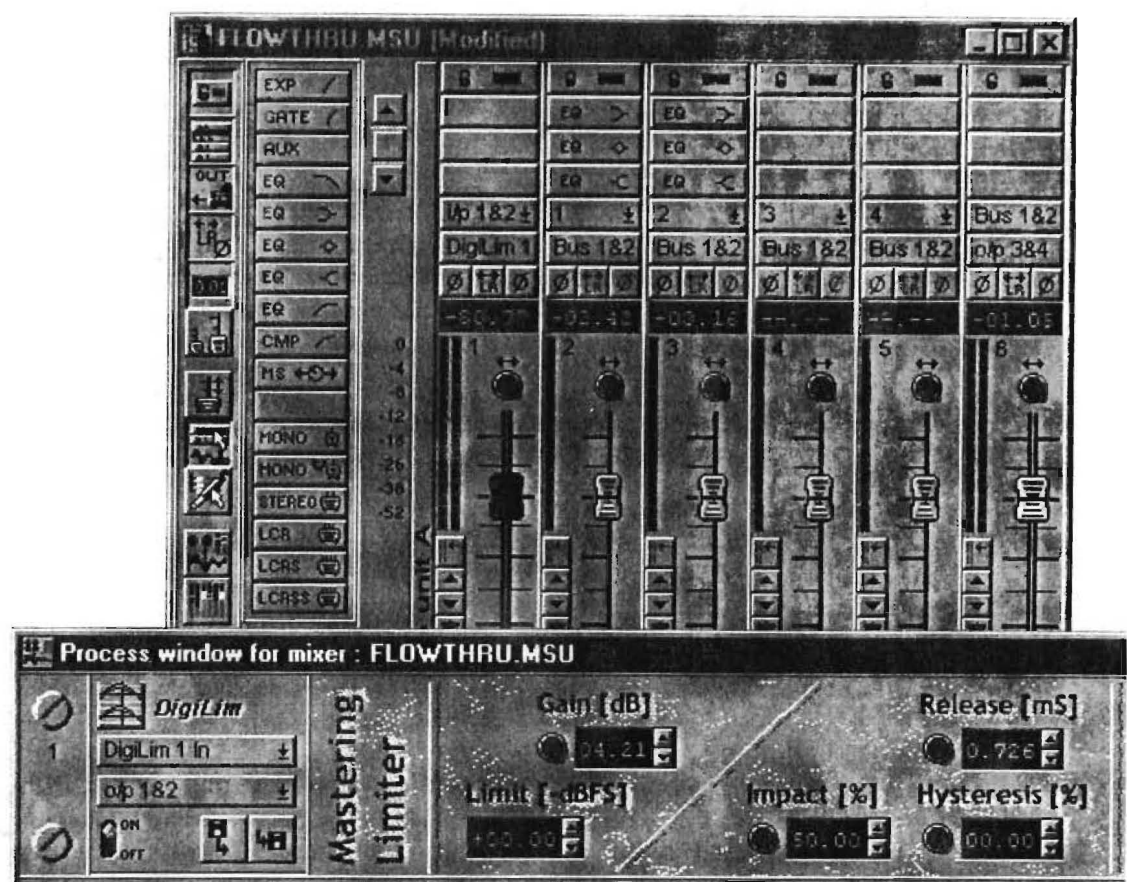
It is possible to create a CD-R disc with two sessions - one a normal red book CD Audio session, the other might contain data of another sort. A CD player only recognises the first session on a disc, and so will see this disk as an ordinary red book CD. A CD-ROM drive will see the data session, which could contain graphics, video or other data.

If you tick the MULTI-SESSION button in the 'Read/Write PQ data' window before writing a CD-R, SADiE will write the red book session as normal using the PQ list, but on finishing this session, will leave the disc open for another session.

Currently the second session will have to be written outside SADiE, but this does allow you to use the powerful PQ editing tools in SADiE for the CD Audio session, and then take the disc onto a different CD authoring system to write the data session.



Multi-session support is an optional feature - contact your dealer for details of how to obtain it.



Now the routing is like this:

Streams 1 to 4 → Bus 1&2 → Output 3&4 → External Equipment →

Input 1&2 → DigiLim 1 In → Mastering Limiter → Output 1&2 → CD-R

You will also have to consider **Audio Settings**. If you feeding the external analog, then normal **Auto** clock settings with Input source set to **Analog** is fine. If you are feeding digitally to the external equipment then you will have to set up the clock source in a way that avoids a feedback loop. There are a number of ways of doing this - if you already have SADiE locked via a separate AES genlock clock, then I assume you will also have the external equipment locked to the same AES clock, however if this is stand-alone, then it is best to set:

- Audio input: (in Setup Window; Audio)
- AES
- Clock Source: (in Setup Window; Audio; Further Audio Settings)
- Internal

This way, SADiE is the master clock, and the external equipment should be set to clock to its input. If it's possible to set one of the external units to be Master clock, then you will need to change SADiE's clock source to be **Genlock to Input 1&2**.

Hint:

If you're using the same kind of processing and mixer setups for most jobs - save the mixer as a **template** (see Chapter 9 - Customising SADiE ; Playlist and Mixer Templates)

ORANGE BOOK CDs


In addition to Red-book, disk-at-once CDs, SADiE can create Orange book, track-at-once CDs.

Red book CDs include the full PQ data - multiple IDs per track, ISRC codes, Mode 2 bar codes etc., and these have to be written to the CD-R media in one go. Once the disc is burnt it is complete and no more tracks can be added.

Orange book CDs have reduced features - each track has essentially only a Track Start flag, but an advantage is that tracks can be added at different times. However, the disadvantage of Orange book discs is that a normal CD player will not play them, unless they have been 'fixed up'. When an Orange book disc is 'fixed up', no more tracks can be added to it and it effectively becomes a finished Red book disc.

Before they are fixed up, there are some devices that will play them back - for instance you can buy Orange book players and recorders. SADiE will play orange book discs with some CD-R drives.

Recording Orange Book Tracks

To add a track to an Orange book disc is very simple - this is part of the normal Bounce procedure. Select an entry or group of entries and press the  Bounce button.

In the DESTINATION section of the Bounce window, there is an option for CD-R. Ticking this box will first log the disk in the CD-R drive to check if it can be used for Orange book tracks, and then it shows a new section on the bottom of the Bounce window, as in the diagram.

There is a special mode which enables you to make a CD Master to DDP or CD-R while listening in real-time, which will also allow you to use real-time inputs and outputs so that you can use external processing.

Real-time DDP

Most Exabyte drives are able to play and record audio at real-time, however, please note that one of the most popular drives - the 8505 model - performs a re-calibration every nine minutes or so, which stops the process for too long to continue a real-time playback. If you are unsure, test your drive first.

Real-time CD-R



Under normal circumstances, there are some difficulties with real-time CD-R - in particular the fact that when a CD-R is written, there is a long halt near the beginning while the PQ data is being written. However, SADiE can accommodate this by delaying the writing process (but still playing back continuously) until the CD writer is ready for more data. To initiate Real-time CD-R writing, edit the PQ as normal, and when it comes to writing the CD-R, open the Read and Write PQ data Window, and press the button next to **Non-Real-Time** so that it is NOT ticked (i.e. NOT non-real-time).

When you press **Write** the playlist will start to playback as normal. The CD-R will start soon, but there will be a significant delay between play finishing and the CD-R write process finishing. Therefore DON'T eject the disc until you're sure the CD-R write is complete. SADiE will continue playing for about twenty seconds after the end of the PQ list, but when SADiE automatically stops there will be up to about 4 minutes before the CD-R itself is completed. During this period you can, it's not recommended to use SADiE to play/edit etc., if for instance, by playing back or scrubbing too many tracks you were to cause a DSP overload, the CD-R write would be spoiled.

Wait for the CD-R write to finish - at the end of writing, a message will pop-up 'Winding Up Audio i/o - writing lead out' and then SADiE will report 'PQ audio image file written successfully'.

Note:	when you first enter the Read/Write PQ data window, a write speed will be recommended in the usual way. When you de-select non-real-time (i.e. select real-time) this setting is over-ridden. Of course, a real-time CD write will have to be at 1X, but the user doesn't have to change that setting - it will happen automatically.
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DSP Issues - it's worth noting that writing a CD-R like this involves the use of a fair bit more processing than a non-real-time write - if a CD-R will write at 1X in non-real-time, that doesn't mean that it will do so at real-time. You've may have added another mixer strip to handle the input from the outside world, and the extra buffering required to see the write process through

Routing hints for Real-time CD Writing

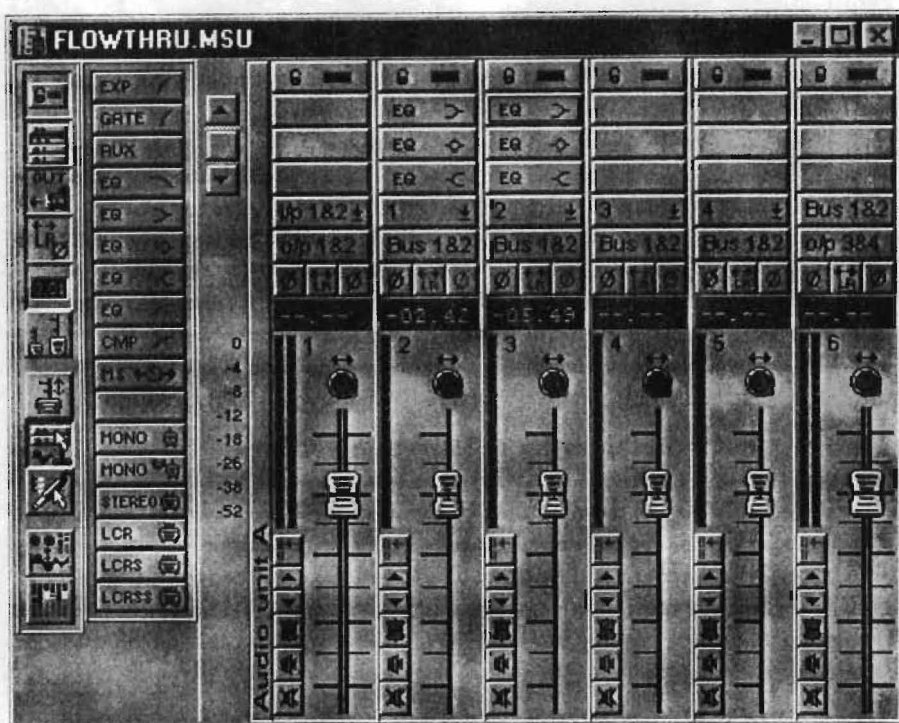
As suggested above, one of the reasons you will want to use **Real-Time CD-Writing** is to allow you to use your external processors in-line during the write and hence avoid a time-consuming re-record process.

I'd advise that you look at Chapter 6 which describes the mixer and particularly its routing methods (but you've read that already haven't you ?), however here's a brief discussion on how to patch external equipment into the mixer.

Because of the flexibility of SADiE's mixer routing, there are a number of different ways of setting the mixer for this purpose. This is just one example.

Example

This simple example uses 4 outputs and 2 inputs. We're using output 1&2 for monitoring (plus, it should be noted, the CD master is ALWAYS made from Outputs 1&2). Outputs 3&4 will be used to send audio to the external equipment (for example an EQ unit and a compressor - in this example I'm putting the whole signal through the external equipment). Inputs 1&2 are used to patch the outputs of the external equipment back into SADiE.





To produce a mixer like this, I've deleted some strips I didn't need, changed the master output (the right hand yellow fader) to be sent to Output 3&4, and dragged a new stereo fader onto the mixer. As it happens the default routing for a new stereo fader is from Input 1&2 to Output 1&2 so I don't have to change that at all.

So you can see that the routing here is:

Streams 1 to 4 → Bus 1&2 → Output 3&4 → *External Equipment* →

Input 1&2 → Output 1&2 → CD-R

A **variation on this** might involve using a SADiE plug-in somewhere in the chain - for instance a Digital Limiter or perhaps UV22 or Dither. These particular processes would normally be placed right at the end of the chain. To add a digital limiter to the mixer above, open the Process

Window , drag a Digital Limiter  onto the 'rack'. We want to route the return from the external equipment to the Limiter and then on to Output 1&2 so that the result can be recorded to the CD-R.

So, starting with the first mixer, now change the routing as per the picture below - the Input fader has its output routed to *DigiLim 1 In*, the Limiter has its input set to this same *DigiLim 1 In* bus, and you should change its output to go direct to *Output 1&2*

ROUTING SURROUND BUSSES TO PHYSICAL OUTPUTS

The two main points that need addressing, with regard to routing surround strips to physical outputs, are:

- 1. Of the available physical outputs, which ones can surround strips actually be routed to?
- 2. In what order will the individual mono sub busses actually appear on these outputs?

WHICH OUTPUTS CAN I ROUTE MY SURROUND STRIPS TO?

SADiE uses a simple rule to decide where you can actually route to:

If the number of channels, *n*, is 1 or even

You can route the bus to every *n*th physical output starting from o/p1.

Otherwise

You can route the bus to every *n* + 1th physical output starting from o/p1.

The second half of the rule is necessary to ensure that busses with odd numbers of channels (excluding mono busses) are treated as though they had an even number of channels. This guarantees that all busses (with the exception of mono busses) are aligned with an odd numbered output. Don't worry if you currently find all this a little confusing and meaningless – once you start using SADiE you'll soon understand and appreciate the need for this rule. The most important thing to remember at this stage is that SADiE won't let you do anything that isn't allowed.

To save you having to work out the full implications of the above rule we have produced the table below. It clearly illustrates all the possible valid output routings for each type of bus in a system with 8 outputs. The 'grey holes' do not necessarily indicate unusable outputs, only that they are unusable by a bus of the same type as the column in which they appear. For example, if you were creating a 5.1 format mix it would be perfectly legal to route your main LCRSS bus to o/p 1-5 and to then route your mono bus (representing the .1 channel) to o/p 6.

Mono	LR Stereo	LCR	LCRS	LCRSS
o/p 1	o/p 1-2	o/p 1-3	o/p 1-4	o/p 1-5
o/p 2				
o/p 3	o/p 3-4			
o/p 4				
o/p 5	o/p 5-6	o/p 5-7	o/p 5-8	
o/p 6				
o/p 7	o/p 7-8			
o/p 8				

As you continue to decrease the divergence, the variation in the level of each channel during a pan continues to decrease, until you reach the minimum setting (no divergence at all) where no change occurs, and the pan control therefore has no effect.

You may have gathered by now that using the divergence control is something of a compromise – too little and you create unnatural results that don't work across an entire auditorium, too much and you start to lose the benefits of stereo sound.

The ability to control divergence is especially important when mixing to picture, and will rarely be left set at its maximum value. Of course, in the case of music production there are no such constraints, so you should just consider divergence as another creative tool. It is important to remember though, that you will not be able to produce truly 'natural' effects whilst the divergence control is at its maximum setting.



MAKING USE OF MIXER TEMPLATES

You may have noticed that creating a basic mixer for surround sound work can be a rather involved and tedious process. First you had to start with a standard LR stereo mixer and then remove all (or some) of the strips before adding the required surround sound strips. Finally, you then had to set up all the routing, creating the necessary surround busses as you went.

Fortunately there is a solution to this inconvenience and it involves a feature that some users may already have experimented with in the past – ‘Mixer Templates’.

SADiE features both playlist and mixer templates, but we’ll just concentrate on mixer templates, although all of the concepts involved apply equally to both types.

Just think of a mixer template as an ordinary mixer which you have created and saved in a special location. Actually, the only real difference between a mixer template and an ordinary mixer is its filename extension (.MST rather than .MSU). Once you have created one or more templates you can then tell SADiE to create any subsequent new mixers from a specific template. Alternatively you can ask SADiE to allow you to choose which template to use at the actual moment that a new mixer is to be created.

CREATING A MIXER TEMPLATE

Creating a mixer template is very simple indeed. The easiest way is to just create a new mixer using the **New** option on the main **File** menu (don’t bother adding it to the currently open project when asked). You can then edit this mixer into the mixer of your choice.

Once you are happy with the mixer you have created you will need to save it as a template. To do this select **Save current mixer as template...** from the main **File** menu (this option will only appear on the menu if the mixer is the currently selected window). A suitable directory will automatically be selected, so all you need to do is give it a name and press OK.

Your template has now been saved and is ready for use.

USING A MIXER TEMPLATE

To set SADiE up to use a template, you need to open the **Setup** window and go to the **Templates** topic, which is a subtopic of **Project Management**. (To reveal the Templates subtopic, double click on the Project Management topic entry). This will reveal the template set up options.

By default, templates are not used. To use specific playlist and mixer templates click on the ‘Use the specified templates’ option. This will enable the two ‘Change’ buttons in the section below. Click on the one next to the edit box labelled ‘Mixer’. You should now see your previously created template(s) listed. Make your selection and press OK.

From now on, all new mixers will be created from the mixer template that you have specified. Playlists will continue to be created in the normal non template way, because no template has been specified.

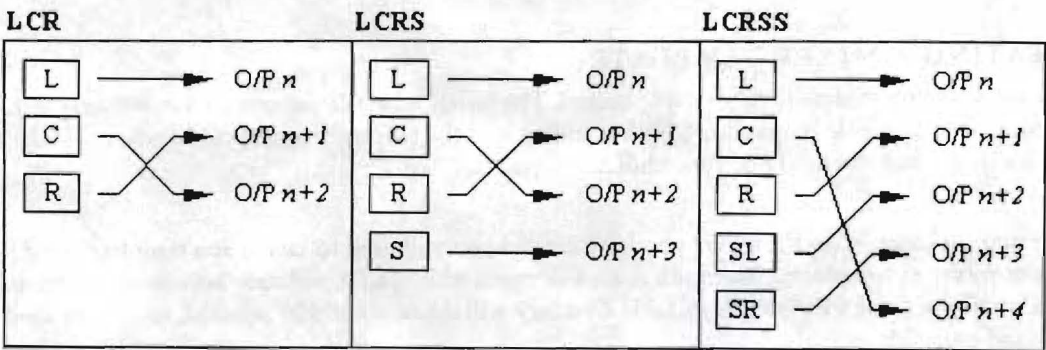
If you find yourself unable to route your strip to where you believe you should be able to, check that one or more the outputs in question are not already being used by a different type of bus in another mixer strip. The most common cause of not being able to route your LCRS strip to o/p1-4 is an LR stereo output strip routed to o/p1 somewhere else in your mixer. Failing this, check that you don't have any Aux Send processes using the desired outputs.

IN WHAT ORDER WILL THE MONO SUB-BUSSES APPEAR ON THE OUTPUTS?

You might be forgiven for thinking that if you routed an LCR output strip to o/p 1&2&3 that the left channel would appear on o/p1, the centre on o/p2 and the right on o/p3.

What actually happens in this particular situation is that the centre and right channels are 'swapped over'. This ensures that the left and right channels always occupy the first two outputs, maintaining compatibility with conventional LR stereo routing. Additionally, when combined with the 'odd' bus alignment rule mentioned in the previous point, it also ensures that the related left and right channels will be sent to the same AES output.

The following diagrams summarise the exact routing used for each of the supported surround formats:



For consistency, a similar re-arrangement of the surround channels occurs if you route a surround format input back into SADiE through three or more physical inputs. In order to work out which channel to apply to each input, use the above diagrams in reverse, following each input back to the appropriate channel.



My output channels seem to be jumbled up – channels don't seem to be appearing on the expected outputs.

Surround busses get re-ordered slightly when they emerge into the real world. There are several reasons for this, but the main two are:

1. To ensure that the first two outputs are always L and R (to prevent you having to re-route your output wiring when switching between LR stereo and surround projects)
2. To keep related stereo pairs on the same AES output wherever possible.

For more information about the exact channel routing used by each of the surround formats, see the section entitled '*Routing surround busses to physical outputs*'

If you ever want to change your choice of template or mode of working (as you inevitably will sooner or later) then just return to the Templates setup page and make your changes. All of the settings in this window are also user specific, so each user can have their own preferred template configuration.

FAQs, TIPS AND TROUBLESHOOTING

If I create a project whilst the surround sound features are disabled, will I be able to incorporate surround sound strips into the mixer at a later date?

Yes. The state of the Surround Sound features option when the project is created is of no consequence. If you subsequently require the surround features then just enable the option in the Setup window and reopen your project.

Inserting multiple strips into a mixer is a real 'drag', especially when they are surround strips, because I have to keep responding to the 'Input Format' dialog when I drop a strip. Is there a short cut?

Yes. Instead of dragging the strip button from the toolbar, double click on it instead. If it is a surround strip button select the input format that you require. Then simply click wherever you wish to insert a strip into the mixer. When you have finished adding strips, click the right mouse button to exit insert mode. This handy feature also works for inline processes.

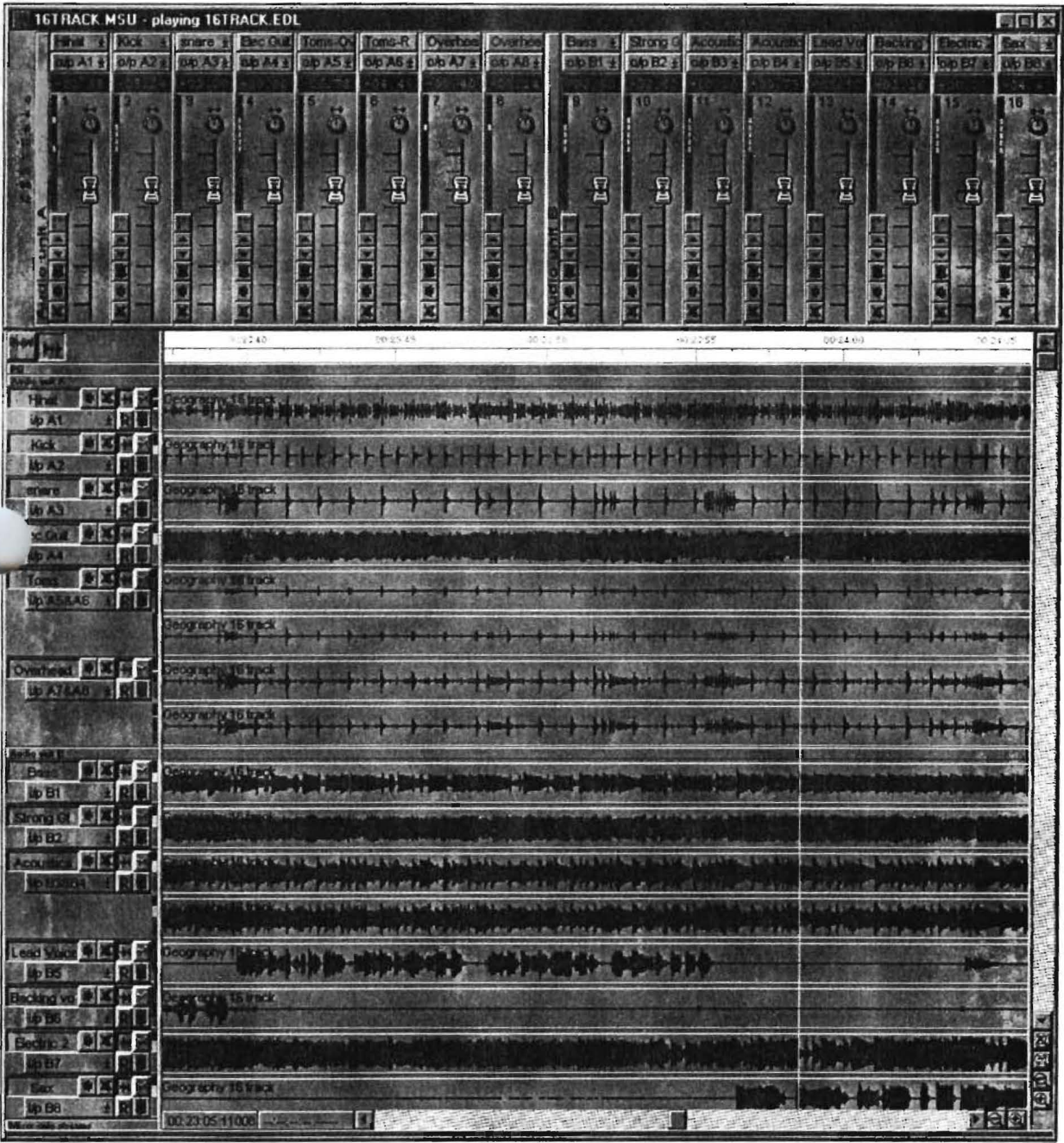
I've enabled the surround sound features checkbox on the Setup window and closed and reopened my mixer, but I still don't get the surround format strip buttons.

You probably just haven't 'really' closed the mixer. You need to do this from the project window by right mouse clicking on the mixer component and selecting **Close Component** from the popup menu. Once closed, double click on it to reopen it again. Alternatively (or if you are not working in project mode), close the mixer from the File menu and then reopen it.

I've got 4 (or more) physical outputs on my system but I don't seem to be able to route my final LCRS output strip to o/p1&2&3&4.

You've probably already got o/p1&2 assigned to an LR stereo output strip somewhere else in your mixer. Reassign the output of the offending stereo strip to a different output or bus (or delete the strip if it isn't required). If this isn't the problem check all Aux Send processes to see if any of them are using o/p1&2. This problem can also occur with inputs and the remedy is exactly the same - except check strip inputs, rather than strip outputs.

When you change the routing on the mixer (or change the record input selection at the left side of the Playlist) you will notice that you are only offered streams/inputs/outputs and busses belonging that unit. Also when you use the process window for plug-ins, when you drop a new plug-in into the 'rack' you will be asked which unit this plug-in will be operating on.



Playlist and Mixer for a twin-card , 16 track, 24.96 system

12 - MULTIPLE AUDIO UNITS

It is possible to run a SADiE system that utilises more than one audio card or unit, to give you more processing power and audio inputs and outputs. Each card or block of I/O is called a **unit**. There are a few special rules and concepts that you should be aware of.

- It is only possible to add extra 24.96 units. This is not possible with the SADiE XS/XACT (a.k.a. 'Classic') system.
- The multiple audio units are synchronised internally to sample accuracy.
- Extra cards are added as discrete units of audio I/O and playback tracks. It is not possible to pass audio from one unit to another other than by routing it via physical audio I/O in real-time. It's therefore not possible, for instance, to play tracks on one unit and process them on another, unless you connect the outputs from the first unit into the inputs of the second using physical cables.
- It is possible to *move* clips from one unit to another in order to change the playback unit. And it is possible to make recordings that span units, creating multi-channel clips that can be edited as one clip.
- Non-real-time operations can only be performed on one unit at a time - the units are synchronised for real-time playback but not for non-real-time operations. Thus you must choose a unit for each bounce operation, and CD masters can (usually) only be produced from one unit.
- The maximum number of units that can be linked together is four.

THE PLAYLIST AND MIXER

The Playlist and mixer displays have divider bars (horizontally in the Playlist, vertically in the mixer) with 'Audio Unit A' (or B, C, D) on them to show you which areas of the Playlist and Mixer are devoted to which audio unit. The divider bar is at the top of the Playlist streams and to the left of the mixer strips that it is referring to. The units are labelled A, B, C, and D (for up to four units), and stream numbers and busses, inputs and outputs on the mixer are prefixed with A,B,C, and D. Playlist streams and Mixer strips belonging to a particular unit must be kept together - you cannot move a stream or strip from, for instance, unit C to be next to one from unit A.

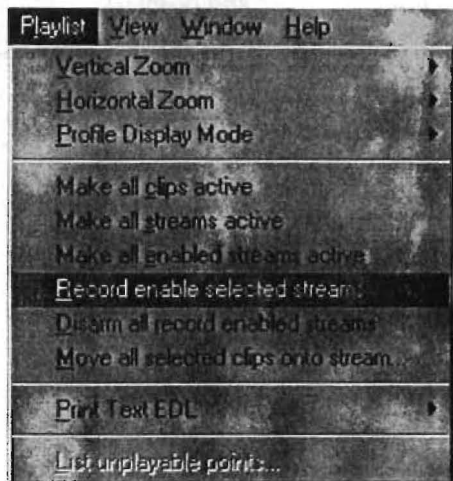
You can double-click on the divider bars to hide the unit's streams or mixer strips, and double clicking again will reveal it

Playlist streams from one unit can only route through their own mixer unit. Clips can span across units, and can be dragged to different units, so if you do want to move audio that originated on one unit to be processed by another unit, or to be played out of a specific output, then you can just pick up the clip in the usual way and drag it to a different stream on the other unit.

A common use for such a large multi-track system is as a multi-track player and editor only, and it's quite possible that you'll be using a separate mixing console, and so may have no use for SADiE's onboard mixer. In which case you may want to configure the streams and mixer as in the picture below - you can see that every stream in the playlist is routed directly to a different physical output. However in another configuration you may want to use SADiE's own routing - SADiE's mixer still works exactly as usual. See *Chapter 6 Mixer and Processing; Routing* for details on how to change the mixer routing. Also see *Chapter 9 Customising SADiE; Playlist and Mixer Templates* which explains how to set SADiE to start up with your own design of mixer and playlist.

Record enabling streams

This can be very tedious with multi-track recordings if you have to push each and every **R** record enable button. The good news is that there are menu options that help speed this up:



This menu will only be on the top menu bar of SADiE if the playlist is selected - click once anywhere on the playlist to focus it.

Enable the streams you wish to put into record by pressing the Stream Name button **2** - a stream is enabled when the button is pushed in. You can enable multiple streams by holding the SHIFT key when pressing this button - all the streams at the same state above the one pressed change state. Holding the CTRL key while pressing this button enables ONLY the one selected and disables all others.

Then you can record enable all the enabled streams using the Playlist menu option. Also there is an option to disarm all record enabled streams for when you've finished recording.

BOUNCING AND NON-REAL TIME OPERATIONS

You are only allowed to Bounce on one unit at a time, either in real-time or non-real-time.

The Bounce window has a Unit Selection box which allows you to choose which unit is doing the bounce, and this is normally automatically selected for you on the basis of the source you have selected before going into the bounce window. However you should be careful when selecting the source clips not to select clips on the wrong unit (or across units). If you do, these will be included in the bounce - not their audio, but their length will have an affect on what gets bounced. For instance if you are bouncing some clips on unit A, but also select a clip on unit B which finishes ten minutes later than the clips you really wanted to bounce, then the bounce process will continue for that extra ten minutes, but the clip produced will be empty for that period. This is not a serious problem, and you will see warnings if your selection spans more than one unit, but it can be a time and disc space waster.

Otherwise the bounce window works exactly as explained for single unit systems in *Chapter 4 ; Bounce-Down*.

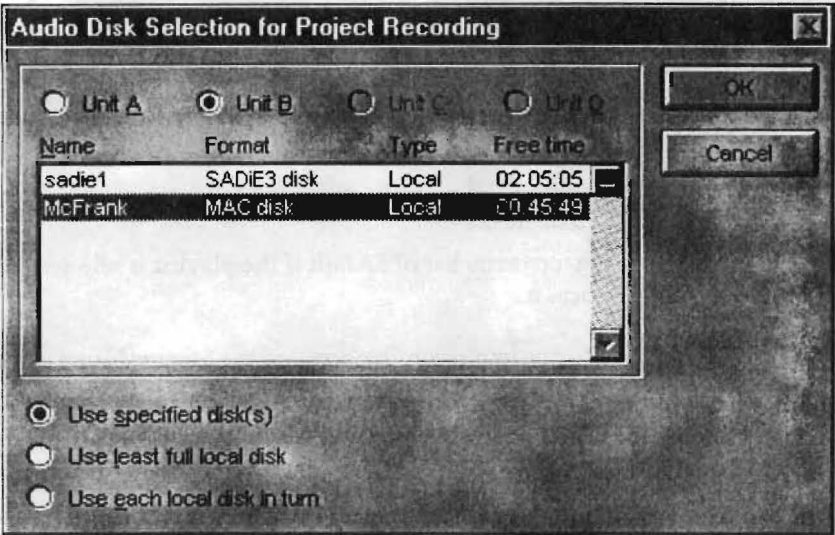
Here are two examples of situations where you may want to bounce down a multi-unit EDL into a stereo pair - 1) when you're making a stereo master, or 2) when you're making a CD master from a multi-track EDL. To perform this you will have to route the mixer in such a way that you can record every unit's master outputs back onto disk.

SCSI DISKS AND RECORDING

To allow the flexibility of moving clips across different units, all hardware units will share a common SCSI bus and each card will occupy its own SCSI ID. One unit (A) will be considered the 'Master' unit and will be at ID 7, other units will reside at 6, 5, and 4 (for a 4 card system). Thus there is room for at least another 4 SCSI drives, which will be shared by the audio units.

When recording, it's possible to record to one specified disk drive, or to choose a different drive for each unit. It depends largely on the scale of the system and recordings, but you may find that a single disk drive is not fast enough to record 32 tracks simultaneously, and so you may choose to record to multiple disks to spread the load across 2 or more disks.

When you start a project, with a multi-unit system (which has more than one disk drive), you will be offered the Audio Disk Selection Window:



This lists the recordable drives attached to your system.

This window will open up showing the Unit A selection, defaulting to **Use specified disk(s)** and if you select a drive and press OK, then that will be chosen for every unit. However by clicking on, i.e. **Unit B** you can select a different drive for some or all units.

Use least full local disk allows you to record to whichever drive has the most space remaining (but only one drive for all units).

Use each local disk in turn will choose a different drive for every track when SADiE goes into record. This is irrespective of how many units you have. The number of tracks depends on how many streams are involved, how they are grouped (a stereo track is one track not two) and what file format you are recording to. So if for instance you are recording 8 tracks across 3 units and you have 4 disks connected, then each disk will record 2 tracks, and thus the load on the disks is evenly spread. If your disks start to become full, for multi-track recordings, your maximum record time is the time remaining on the most full disk drive.

Tracks that are recorded at the same time are grouped together in the playlist and can be manipulated and edited as if they are one single, many-channel clip. You can separate these clips out and regroup them, as long as they are still in the same time relationship to each other. This applies to multi-unit and multi-disk recordings as well as those on single unit systems.

Note that the record input for the new 'Mixdown' stream is 'OutputA1&A2' - we're recording the signal that appears at outputs A1&A2.

Note also that the mixer strip that corresponds to the "mixdown" stream is routed to OutputA3&A4 - this is an otherwise unused output pair and routing it this way avoids a feedback loop.

Audio clock settings

If you're looping one unit back into another like this you may have to consider your audio clock settings. If the connection is via analog connections then there's no problem, Auto or internal clock will be fine, but if the connection is digital you'll have to think a little harder about it. If the system is completely stand-alone, the 'Auto' will not do - you should set the Clock Source to Internal (in View; Setup window; Audio; double click for Further Audio Settings; Clock Source). If you're running locked to an external AES/EBU clock then you'll be set to 'Genlock' to 'Genlock' - physically this is the 'AES Ref In' connector on the master audio unit (A).

So it's all ready to go - your slave units are connected and mixed back into the master unit, and you're set to record the master outputs - OutputA1&A2.

A simple way to make the recording now is :

Press the **Home** key on the keyboard.

Press **SHIFT-F11** - this sets the Left locator at the start of the EDL.

Press the **End** key on the keyboard.

Press **SHIFT-F12** - this sets the Right locator at the end of the EDL.

Then open the **L&R** pane of the transport controls as in the picture, and press the 'Punch' button.

Record enable the 'Mixdown' stream and locate the EDL to a few seconds just before the Left locator.

Press play - the EDL will start playing and automatically drop into record at the Left locator, and out again at the right locator, leaving the master stereo mixdown on the 'Mixdown' stream of the EDL.

CD MASTERING WITH MULTI-UNITS

CD masters can be created to CD-R, DDP or 1630 in the usual way with Multi-unit systems, however with Non-real-time masters the same rules apply as with bouncing - the master can only be made from one audio unit.

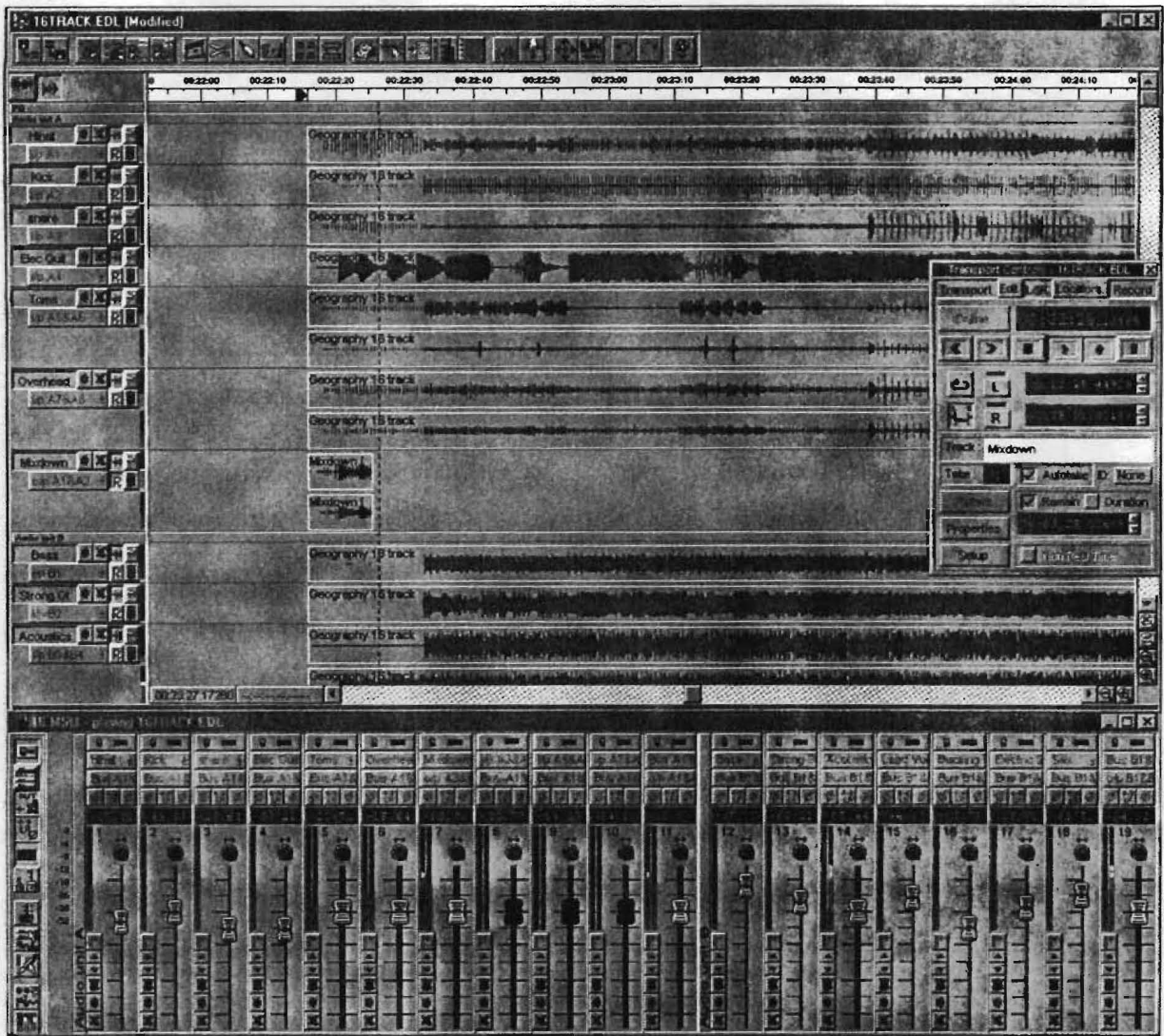
- **Non-real-time** CD masters can only use one unit (this should be Unit A)
- CD Masters involving multiple units can only be made in **Real time**, and any slave unit's outputs must be connected back into Unit A. Outputs A1&A2 are the stereo master mix (a little like the example above)

Example 1 - creating a stereo mixdown

Here's an example setup that does this. Each unit is mixed down a stereo pair, and then I've connected each of these pairs into Unit A using physical cables in order to produce a single master stereo output from Unit A; i.e.

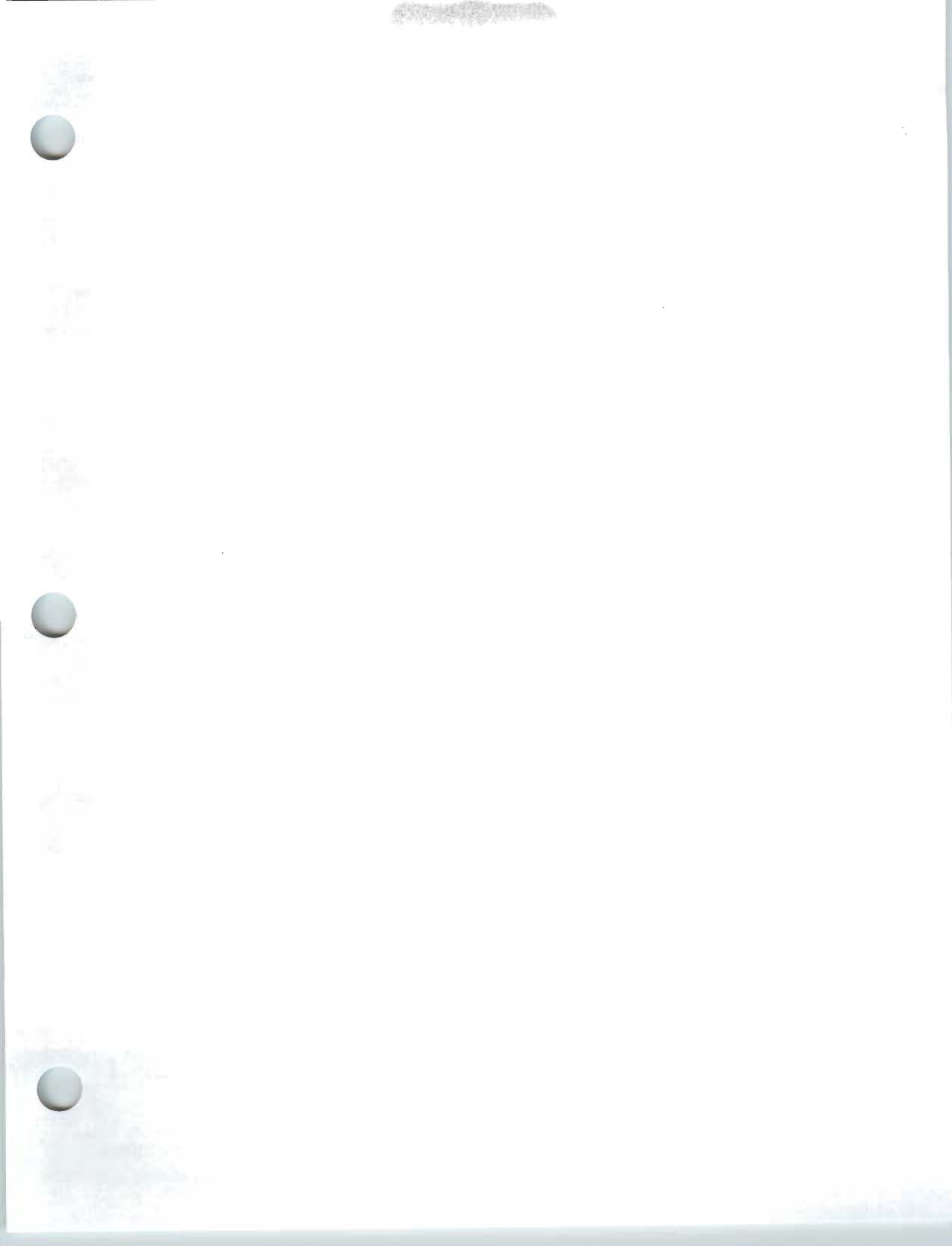
Outputs B1&B2	connect to	Input A3&A4
Outputs C1&C2		Input A5&A6
Outputs D1&D2		Input A7&A8

I've created three new stereo faders on unit A that route Inputs A3&A4,A5&A6,A7&A8 onto BusA1&A2 so that they feed into what is now my main output - Output A1&A2.



This method provides a way of monitoring multi-units on one pair of stereo outputs without using an external mixing console.

To record this back into SADiE, I have created a new stereo stream on unit A - right mouse click on the left side of the playlist on the last stream of unit A and select 'Insert Stereo stream after', and I've renamed this stream 'Mixdown'. For the sake of conserving page space I've stereo merged some of the mixer strips and am only displaying two units but the principle is the same with any number of units.



Example 2 - creating a CD master

If your material spans several units, you may choose to make a CD master directly to the CD-R instead of a stereo master on disc. The set-up is very similar to last example - you connect the slave units' outputs back into Unit A's inputs to create the stereo mix, but instead of re-recording the result back to disc as above, you record straight to a CD-R.

This process has to be performed in real-time because there is no non-real-time audio connection between the units.

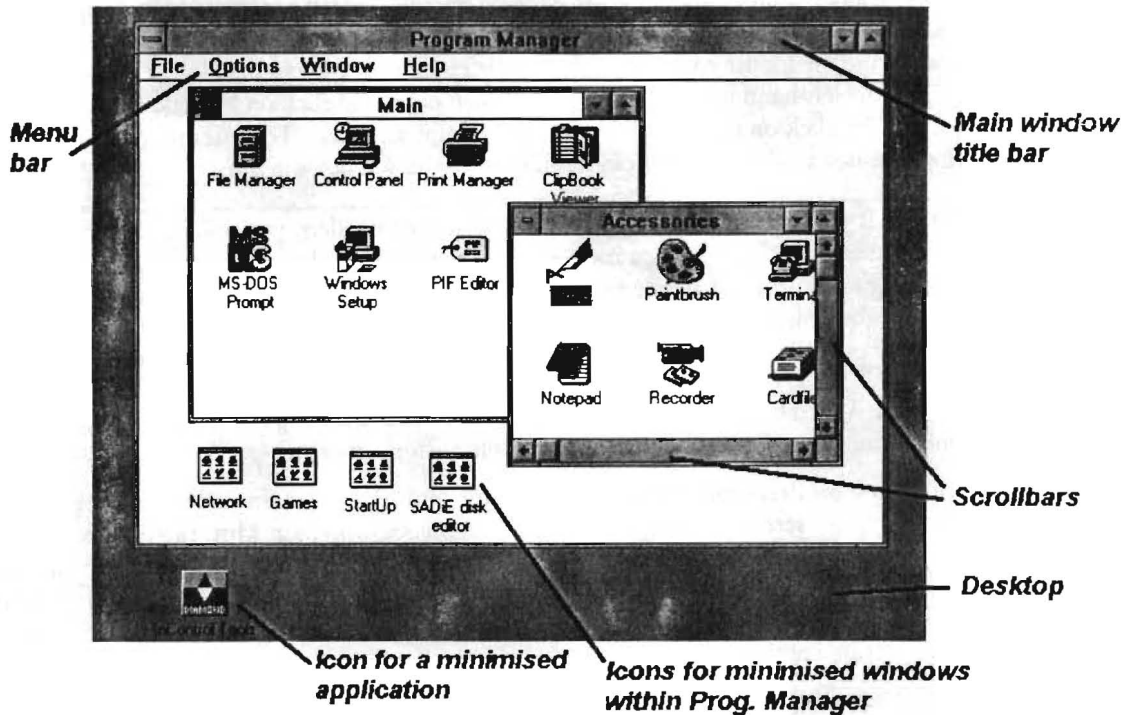
The setup is identical to Example 1 above, however you don't need the 'Mixdown' stream. You will need to consider your clock settings as with the first example. Once you're happy with your master mixdown, you should then follow the instructions for making a CD-R but be sure to untick 'Non-real-time' before starting the write to CD. (See *Chapter 8 - Specific Applications; Notes on Real-time and Non-real-time mastering* for more details)

It's important to be aware that a CD master can only be created from Outputs 1&2.

Application windows have a number of standard features; a **title bar** showing the name of the window; a **menu bar** giving access to various common commands, and a general work area below them. If the window is not large enough to display all of the work area's contents, there will also be **scrollbars**. These let you move the contents of the window to see parts that are not currently in view.

Further windows for specific tasks can often be opened within the work area.

WINDOWS 3.1 & 3.11



Windows 3.1 and 3.11 have an application called Program Manager permanently running on the desktop for looking after programs. It has the same overall format as any other Windows application, with a main window containing other windows and icons and will therefore be used as our example. The icons represent applications on your system which can be run by double-clicking on them. They are arranged in groups, each of which has its own window. One application you will find is File Manager which lets you organise, copy and change the names of all the files on your computer.

APPENDIX A - WINDOWS BASICS

The Microsoft® Windows® operating system provides a standard graphical user interface for IBM compatible personal computers (PCs). This means that you don't have to adopt a different way of working every time you load a new program.

USING A MOUSE

Most of the techniques you need to learn to use Windows revolve around the use of a pointing device, usually a mouse. Microsoft provide interactive tutorial programs to develop your mouse skills and show you how to use the basic elements of Windows. In Windows 3.1 or 3.11 Program Manager, use the mouse to point at the word "Help" in the menu bar along the top of the screen and click the left-hand mouse button once. Then point and click on "Windows Tutorial". In Windows 95, click on the Start button, then "Help" and then "Ten minutes to using Windows". If these are not available on your system, refer to the Windows manual.

NOTE: If you are using SADiE™ with hardware controllers, you will be able to do most things without using a mouse (or similar pointing device). However, certain setting up procedures and arrangements of the display screen do require mousework so it is a good idea to get used to it. You may find that combining the use of the hardware controllers and mouse gives you optimum speed and flexibility.

The mouse is used by pointing at an item on the screen and using the left or right mouse buttons in one of four ways (if you have a third, middle button, ignore it):-

- | | |
|---------------------|--|
| Click | Press and release the <u>left</u> mouse button once. - Generally used for pressing on-screen buttons and selecting an object, or item in a list, that you want to work with. For instance, if you click on an icon in Program Manager or on your Desktop, you will notice that the label is highlighted. This means that the program is now selected. Hitting the return key will then cause it to be activated. |
| Double-click | Quickly press and release the left mouse button twice. - Usually the equivalent of selecting an item <u>and</u> pressing return, i.e. it will make things happen! |
| Right-click | Press and release the right mouse button. - Rare in Windows 3.1 and 3.11, but used in Windows 95 and SADiE version 3 for getting a menu of alternative options for an item or part of the screen. |
| Drag | Click and hold the left mouse button over the chosen item, move the mouse to a new position, then release the button. - Used to move things around the screen and to select more than one object or text character. |

WINDOWS FEATURES

The Windows operating system mimics the way you work at a desk. **Files** (of data or work) and **programs** (tools which you use - also called "**applications**") appear as objects that you can move with the mouse or perform an action on, such as editing a file, running a program, etc.

All work takes place on the **desktop**. This is the basic screen area onto which you bring applications which appear in the rectangular areas we call **windows**. **Icons** are small pictures representing files or applications that are not currently running or showing in a window.

MENU BAR

The menu bar drops down menus of options or commands that the application can perform. Select a menu by clicking on the required word in the menu bar, or by holding down the Alt key and then pressing the letter that is underlined in the word. For example, you can select the File menu by pressing Alt+F.

You will then see the menu of commands which can be selected with the mouse or the keyboard letter that is underlined. To select items from further lists, use the ↑↓ keys

If the command appears dimmed it is not currently available.

If it is followed by dots (...) a “dialogue box” will appear to allow you to enter more information before the command is carried out.

If it has a ✓ next to it this option is active, selecting it again will deactivate it.

If it has a key combination (e.g. Alt+F4), this is a keyboard shortcut for selecting the command at any time, without going through the menu bar.

If it has ► next to it this option displays another sub-menu.

WORK AREA

This is where the action happens. The type of application will determine the type of display and the available operations. For instance, you use the work area for drawing in a paint program and typing in a word processor.

Windows in the work area can be moved around the screen by dragging their **title bar** with the mouse.

You can change their size by dragging their borders or corners (the mouse pointer will change to a double headed arrow). You can't do this if a window is maximised.

If the window is too small to show you all of its contents, then **scrollbars** will appear allowing you to scroll the contents past the window. You can do this:

- 1 in small steps by pressing or holding down the little arrow buttons.
- 2 in steps of a whole window width/height by clicking either side of the moving box.
- 3 by dragging the box itself.

Play around with the Program Manager or Windows Explorer to see what happens.

DIALOGUE BOXES

Many tasks, such as opening and saving files, cause a box to appear in which you make selections and choose between various buttons. The buttons can be directly pressed with the mouse, or you can hit the keyboard return key (↵) to press the button that is shown with a heavier outline. This will be the most likely, or the safest button to press! Using only the keyboard, you can use the Tab key (⇧) to move between items → buttons for selection, before pressing Return.

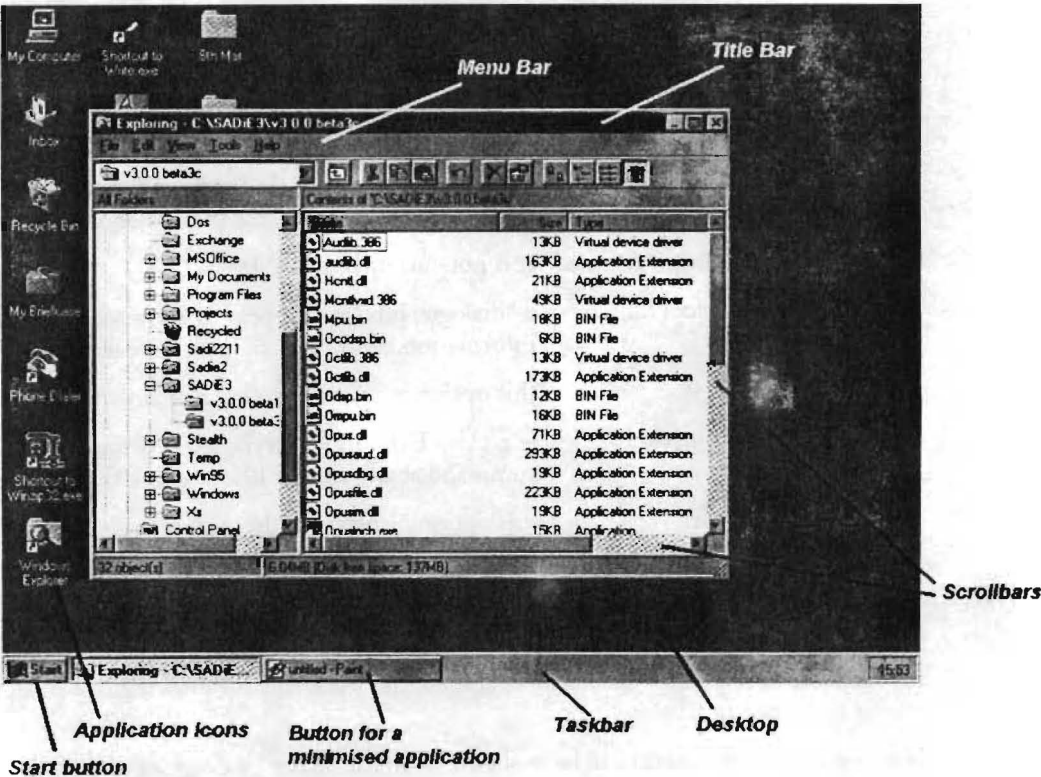
SELECTING ITEMS FROM A LIST

Run File Manager or Windows Explorer, which list files on your PC in lists.

You can select items in this list in the following ways:

1. Clicking on an item selects it, deselecting any others.

WINDOWS 95

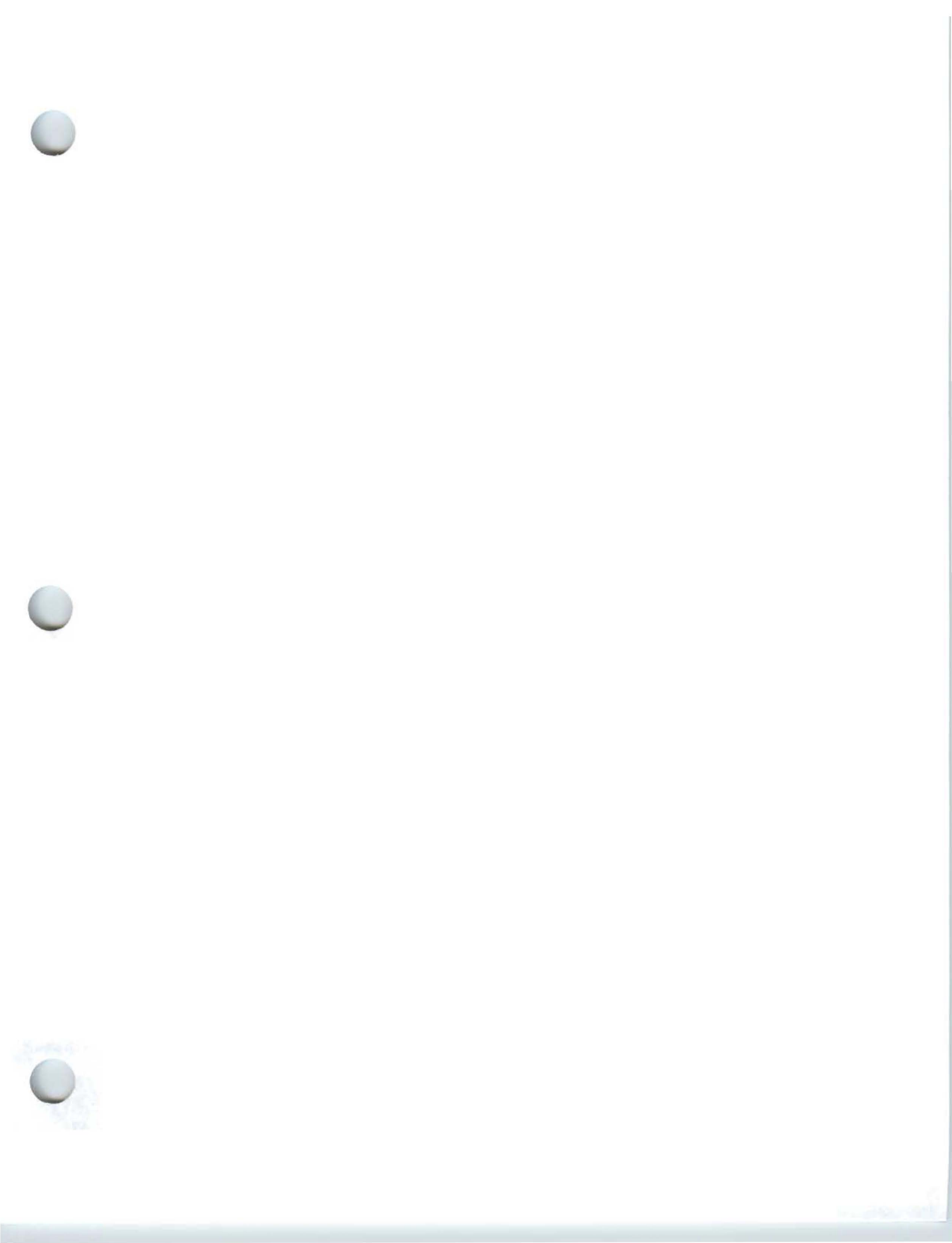


Windows 95 lets you get at everything directly from the desktop via icons or from the **start button** on the **taskbar**. Press the start button, or press Ctrl + Esc. on the keyboard. Then click on “Programs” and, in the next box that pops up, on “Windows Explorer” Alternatively, if there is an icon for Explorer on your desktop, you can double-click on that. Explorer, like File Manager, is for organising all the files on your system and will serve as our example.

TITLE BAR

As well as showing you the name of the application, the title bar has a number of buttons that control the window.

WIN3.1	WIN95		
		Minimise button	Reduces the window to an icon on the desktop, or a button on the taskbar. This lets you make space on the desktop for other work.
		Maximise button	Increases the size of the window to fill the whole screen. Duplicated, rather annoyingly, by double-clicking in the title area.
		Restore Button	Restores a maximised window to its original, intermediate size.
		Close Button	(Win. 95 only) Closes the window. In a main application window, closes down the application.
		Control menu	On the left of the bar. A single click gives all the above options, showing their keyboard shortcut keys. Double-clicking is Close.



2. Selecting one item, then holding the Shift key while clicking on a second item selects all those in between as a block.
3. Holding the Ctrl key while selecting lets you select multiple items from the list.

NOTE: The above convention applies to lists you will find in SADiE - so remember it!

SWITCHING BETWEEN APPLICATIONS

If you have more than one application running, you can switch between them by holding the Alt key and repeatedly pressing the Tab key (⇧+⇧).

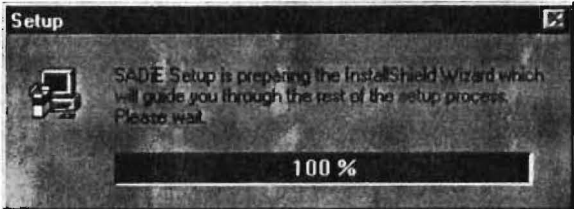
A box will appear, indicating each of the running applications with each press of the Tab key. Releasing the keys will now switch the computer to the indicated one.

RESTARTING THE COMPUTER

If the computer stops responding (it has been known!), rather than simply turning off the power, do a soft re-start by pressing Ctrl+Alt+Delete. In Windows 3.1 this will re-start the whole system. In Windows 95 you will have the opportunity of shutting down only the application with the problem.

You will be presented with the Run dialogue box. Type **a:\setup.exe** in the Command Line box. This starts the SADiE set-up program.

The setup software ask you to wait while it configures itself, displaying the following box:



This is followed by a Welcome screen, which gives you the opportunity of continuing with the installation or cancelling it, in case you started it by mistake.

NOTE: Each setup screen has the following buttons:

- Next - move onto the next screen
- Back - go back to the previous screen
- Cancel - abandon the installation

The buttons can also be selected using the letter in its title that is underlined.

- 3. The next screen contains the licensing information for the SADiE system. Please read the information carefully and - if you agree to the conditions - use the YES button to continue the installation. A copy of the licence agreement can be found in the *Introduction* of this manual.
- 4. The Choose Destination Location screen determines where the SADiE files will reside on your PC's hard drive. The drive needs to have at least 8 megabytes of free space.



You can leave this selected to the default folder SADIE3, which will be created if it doesn't already exist on your drive. Any older version of SADiE software that exists in this folder will be overwritten. If you want to keep older versions, use the BROWSE button to select a different folder for this new one.

APPENDIX AB - SOFTWARE INSTALLATION

NOTE: If you have purchased a pre-configured or "Turnkey" SADiE™ system, the software will already be loaded. The system will normally be configured to run SADiE when you first turn the machine on. See the instructions in Chapter 1, *Getting Started*.

The SADiE software set-up program is a Windows® application that will automatically copy the program files onto your hard disk and configure the Windows environment. You will need to run the set-up program when:

- You need to install an updated version of the SADiE software.
- If you ever replace your PC's hard disk.
- You want to install SADiE into a new PC.

NOTE: Installing new SADiE software on an existing system will not destroy any of your work - Existing Project, EDL, Clipstore, Mixer files, etc. are not destroyed. The settings in your INI file (as shown by the Setup window) will also be retained.

PREPARATION

Before you can install SADiE software for the first time you first need to have installed DOS and Windows 3.1 or Windows 95 onto your PC's hard disk. Please refer to the DOS and Windows documentation for information on how to do this.

Once you have a fully working Windows 3.1 or 95 system you can now install the SADiE software. Although SADiE stores all its digital audio files on an independent SCSI disk, you need about 8 megabytes of space on your PC's hard disk to install the SADiE program and data files.

If you are unsure of how much space you have on your hard disk, you can use Windows *File Manager* or *Explorer* to find out. Please refer to your Windows User Guide for information.

NOTE: SADiE operates quite happily at most screen resolutions - such as a Super VGA in 800x600 mode - the installation program should ideally be run in the resolution that you intend to use. See Chapter 9, *Customising SADiE* to change screen resolution.

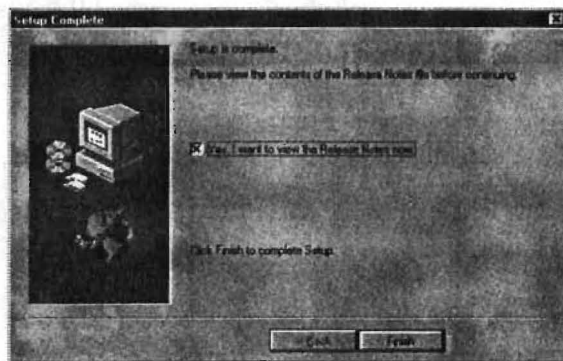
INSTALLATION

The floppy disks marked **SADiE3 Software and Utilities** contain the executable programs and data files that make up the system software in a compressed format. The setup program decompresses and loads these files onto your hard disk so that you can use SADiE.

Setup takes you through the installation procedure via a series of screens allowing you to choose various options.

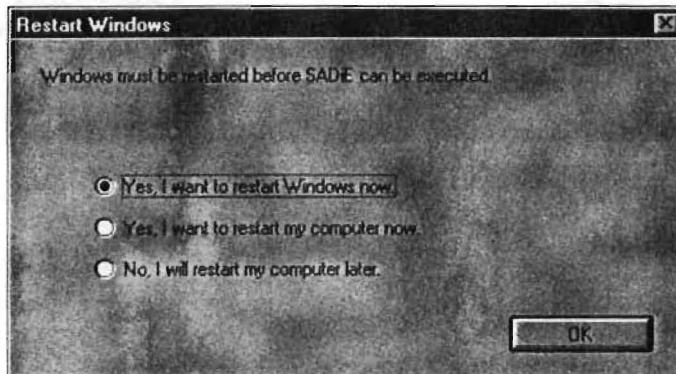
NOTE: We have assumed that your PC's 3.5" floppy drive is drive A:. If this is not the case, simply substitute the correct drive letter (e.g. B:) throughout this chapter.

1. Run Windows and put **SADiE3 Software and Utilities DISK 1** in the floppy disk drive.
2.
 - From Windows 3.1 Program Manager:
Click on the File menu and select "Run" (or type Alt +F and then R).
 - From Windows 95's desktop:
Press the Start button and select "Run" (or type Ctrl +Esc and then R).

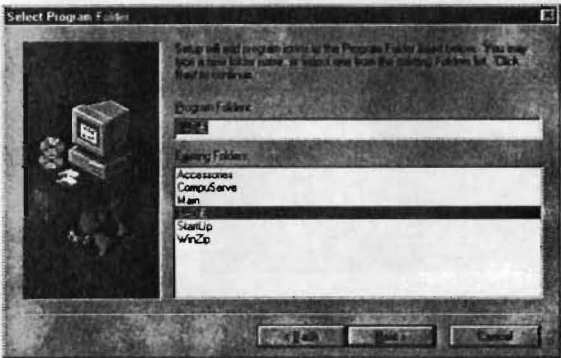


We recommend that you choose to view the release notes at this point. Then click Finish.

11. As the new SADiE installation has changed certain Windows initialisation settings, you must restart Windows before you run the new software. The final box gives you three options of when to do this.



- 5. The next screen allows you to choose in what folder the icon that you select to run SADiE will be located. This folder represents the Program Group, either in Program Manager (Windows 3.11) or on the Start Menu (Windows 95).



You can select an existing folder, or create a new one by typing in a name in the box at the top.

- 6. The setup program then needs to know what SADiE hardware you are using. Check the appropriate buttons for hardware platform and hardware controllers.
- 7. A new screen will appear summarising the settings you have made so far. Click Next to continue.
- 8. This box will appear showing the progress of the setup installation as it copies the files to your hard disk:



You will be prompted to insert the remaining SADiE installation disks at the appropriate time.

- 9. When copying is completed the following box appears:



Take your pick. You can change this option at any time. See “Starting SADiE Automatically” in Chapter 9, *Customising SADiE*.

- 10. The installation is now complete and the final screen appears.

EDIT/SELECT	<div>1. Selects Streams (as above).</div> <div>2. Selects EDL Entries: With no IN/OUT/HOT point selected will select the Entry under the cursor on the first enabled Stream. (SHIFT + SELECT is multiple selection as described above)</div> <div>3. Turns on Playlist Editing mode: With an IN/OUT/HOT point lit it will put the Entry under the cursor into editing mode working on the selected IN/HOT/OUT point. PREVIOUS/NEXT will then select another Entry for editing.</div>
RAZOR	Razor cut on enabled Streams.
CUT/COPY/PASTE	clips and EDL Entries to/from all windows. Pasting into an EDL pastes in-point at the current cursor position on the lowest numbered, enabled Stream.
IN/HOT/OUT	In the Trim editor, and in the Playlist with Playlist Editing mode on, select the point for adjustment and jump the cursor to that point.
GRABTIME	Enters a new mode where the wheel selects time displays in turn. The value in the display may then be copied and pasted to another display
LOCATE + F1-F12	Set or Locate to numbered locator. F11 and F12 work as the Left and Right locators.
SHIFT + LOCATE + F1-F12	Overwrites existing locator point.
PREVIEW	Previews an edit in Playlist Editing mode or the Trim Editor.
SAVE	Duplicates File Save on menu bar, so saves the current EDL, Clipstore, Mixer, etc. The exception is with the Project window active, when the button will save the Project and all components.
F1-F12	<div>Programmable function keys, which can be assigned in the Setup window.</div> <div>There are four banks in all: F1-F12 SHIFT + F1-F12</div> <div> ASSIGN/ F1-F12 ASSIGN/ SHIFT + F1-F12</div> <div> giving 48 possible Hotkey actions.</div>
SHIFT / F5 F1 F2 F3	Nudge selected EDL Entry up, left, down, right as per buttons in Autoplace toolbar.
F12	Default Hotkey to turn waveform display on/off for ALL Streams
SCRUB	Toggles scrubwheel action through Jog / Shuttle / Move cursor.
UNDO	Undo.
SHIFT + UNDO	Redo.

APPENDIX ABC - HARDWARE CONTROLLER FUNCTIONS

When you first connect your hardware controllers, you will need to initialise them by selecting them to a 9-pin channel. This is done in the 9-Pin Control section of the Setup window. Use the View menu to display it.

The controls on the hardware controllers apply to whichever is the active window on the screen. Therefore in many cases you will need to use the **WINDOW** button to select the required window before using other controls.

The **SHIFT** button on the hardware controllers doesn't need to be held down unless you are following it with more than one further button push.

The **ASSIGN** key is latching and affects other button actions until it is released.

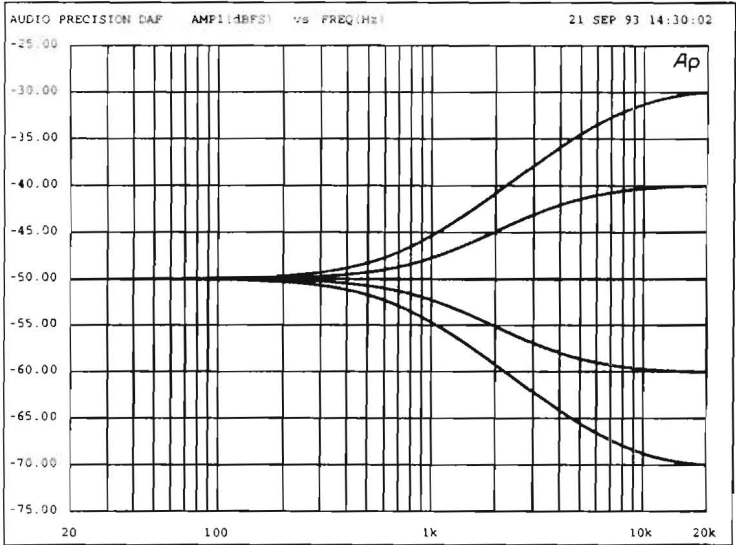
EDIT CONTROLLER

THE SCRUBWHEEL	is used for audio jog/shuttle and, in other modes, selection. The mode is selected by the SCRUB button and will apply to the active window, as selected by the WINDOW button.
ONLINE	Puts the selected external machine on line for control by SADiE and puts SADiE on line for timecode synchronisation.
SLIP	Slip on/off (the cross/tick button in Autoplace toolbar). Turning Slip on will enable left or right slipping as pre-selected on the Autoplace toolbar or status bar display.
AUTO	If Playlist active, turns automation display on/off for ALL Streams If Mixer active, enables automation.
LOCK	Lock all Entries to EDL time.
STREAM	Allows Stream selection: Both wheel and PREVIOUS/NEXT buttons select Stream by moving red highlight around Stream enable button on screen. Then EDIT/SELECT enables/disables that Stream. Using SHIFT + EDIT/SELECT changes the status of a group of Streams: Select one, SHIFT + SELECT another, and all in between get toggled. (Like File Manager).
CLIP	Wheel selects EDL Entries on enabled Streams in order. Used with IN/OUT/HOT , will jump cursor to appropriate point.
ZOOM	Wheel gives horizontal zoom.
SHIFT + ZOOM	Wheel gives vertical zoom.
PREVIOUS/NEXT	If Playlist active, selects previous/next EDL Entry and jumps cursor to selected IN/HOT/OUT point. If STREAM button on, selects previous/next Playlist Stream. If Trim Editor active, selects previous/next Entry in it. If Clipstore active, selects previous/next Clip in it.
WINDOW	Toggles through which window is active.
END	Moves cursor to end of last Entry of EDL.
SHIFT + END	Moves cursor to start of first Entry of EDL.
PLAY/STOP/REC/PAUSE	Produce toast from floppy disc slot. What do you think ???
CROSSFADE	In Playlist Editing mode selects the inside fade point - i.e. the end of the fade-in if IN is selected, the start of the fade-out if OUT selected.
SHIFT + CROSSFADE	selects the outside point.
EDL/SOURCE	Switches between edit modes - EDL no light, Source with light on.

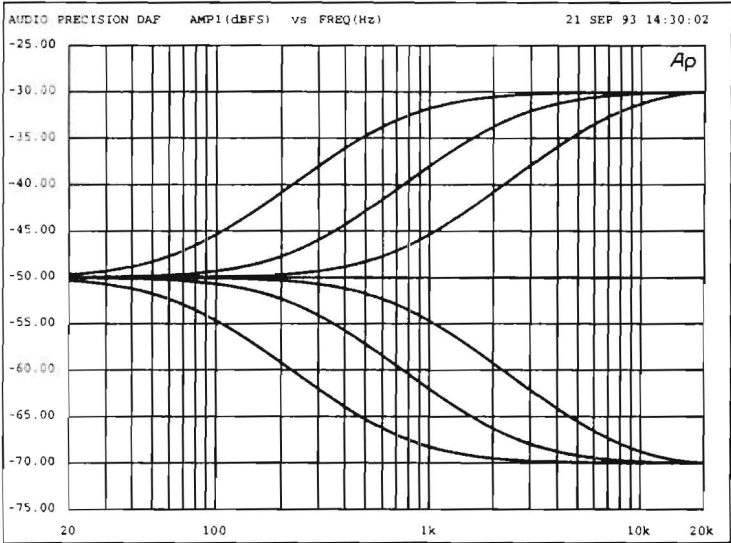


FADER PANEL (and the single fader on the edit controller)

MUTE	Mutes selected strip.
SHIFT + MUTE	Solos selected strip.
ASSIGN + ←/→	Bank select - will select the next eight Mixer strips.
ASSIGN + ↑/↓	Changes faders from Level control (Fd in top left LED) to Pan (Pn in LED)
SELECT	Selects this strip's processing for adjustment. Strip number appears in top left LED and processing strip is displayed.
↑/↓	Toggles through selected strip's processes for adjustment by rotary knobs. Knobs A-F control the section parameters from the top down.
EQ	Direct selection of EQ sections.
CMP	Direct selection of compressor sections.
ASSIGN + MUTE	Bypass all processing on the strip.
SHIFT + SELECT	Reassigns fader to new on-screen Mixer strip - move the fader, the new strip number is shown by the LED. Let go of fader - it selects.
OVERWRITE/TRIM/ AUTORETURN	Change automation mode.

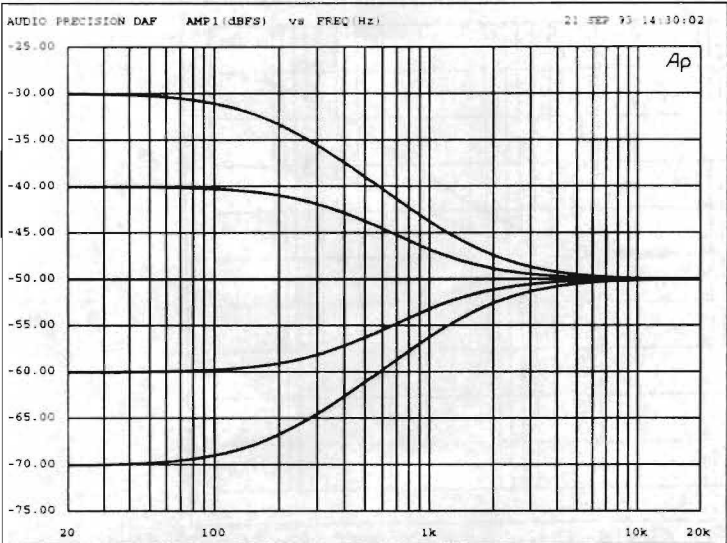


HIGH SHELF @ 6KHz; Gain = +20, +10, 0, -10, -20 dB.

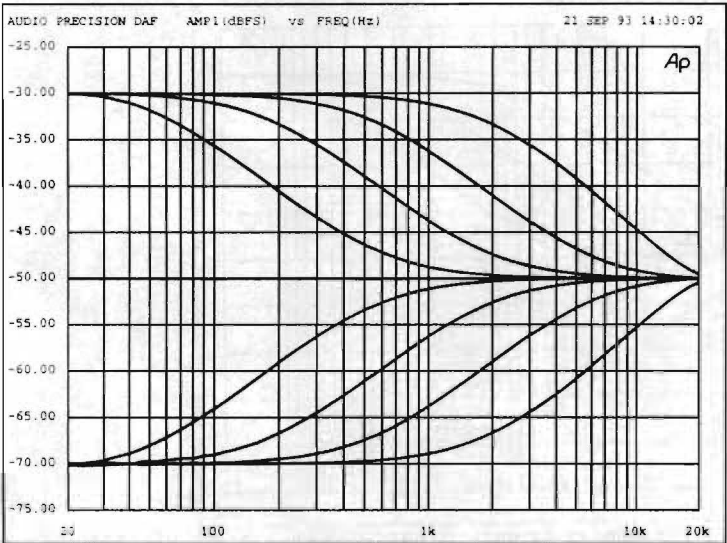


HIGH SHELF +/-20dB @ 600Hz, 2kHz, 6kHz.

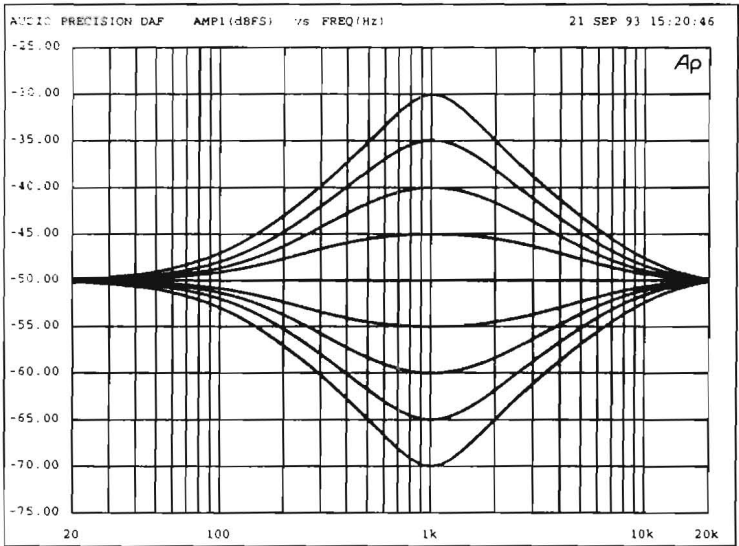
APPENDIX ABCD - EQUALISATION CURVES



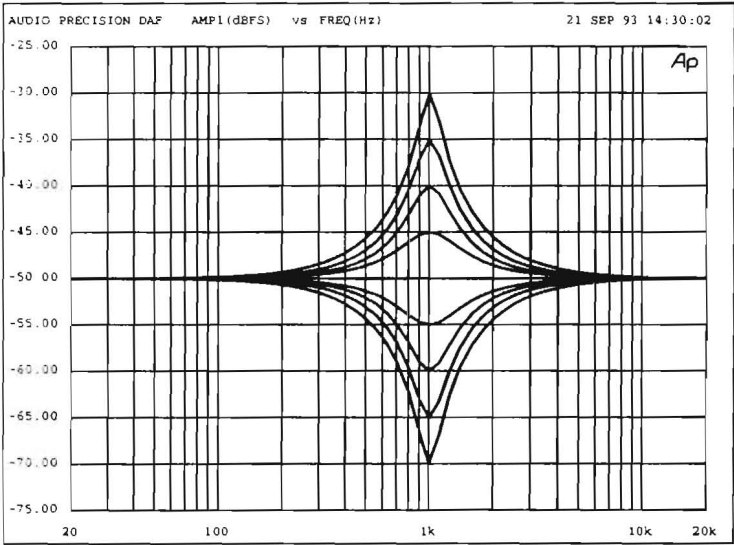
LOW SHELF @ 200Hz; Gain = +20, +10, 0, -10, -20 dB.



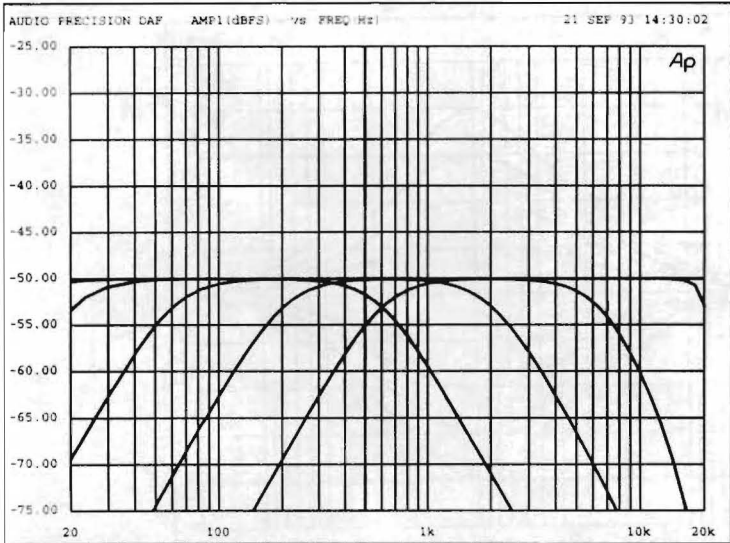
LOW SHELF +/-20dB @ 60Hz, 200Hz, 600Hz, 2KHz.



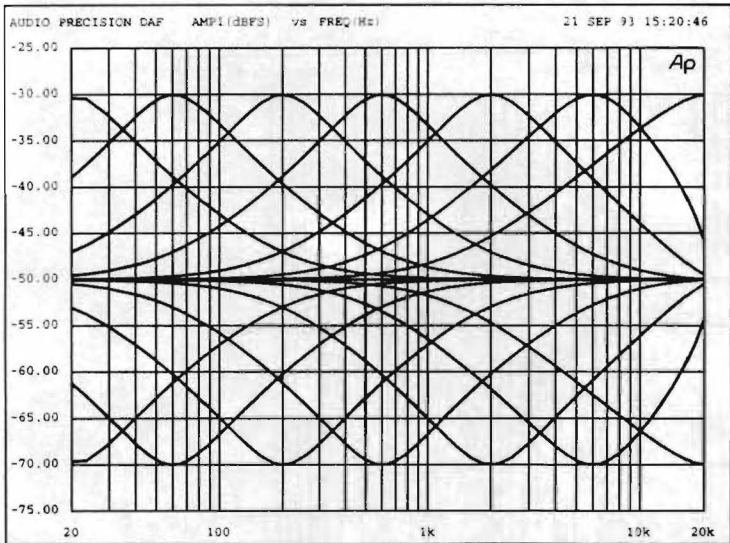
BAND-PASS @ 1kHz, Q=1, Gain = +20,+15, +10, +5, 0, -5, -10, -15, -20dB.



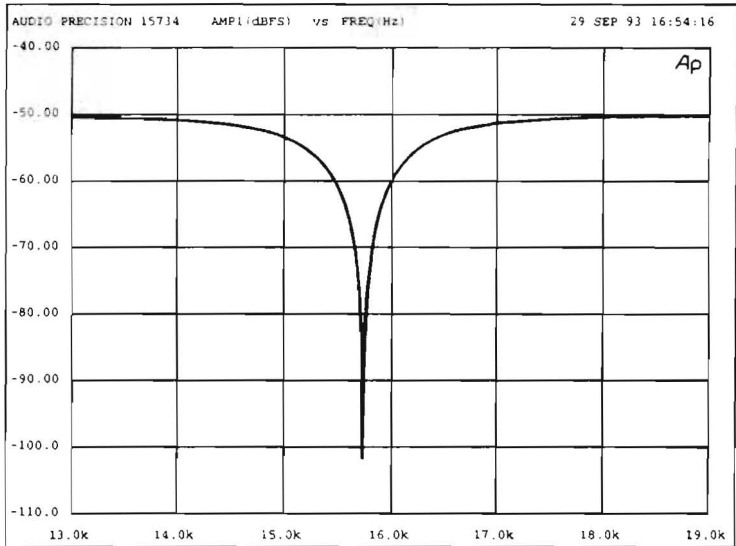
BAND-PASS @ 1kHz, Q=5, Gain = +20,+15, +10, +5, 0, -5, -10, -15, -20dB.



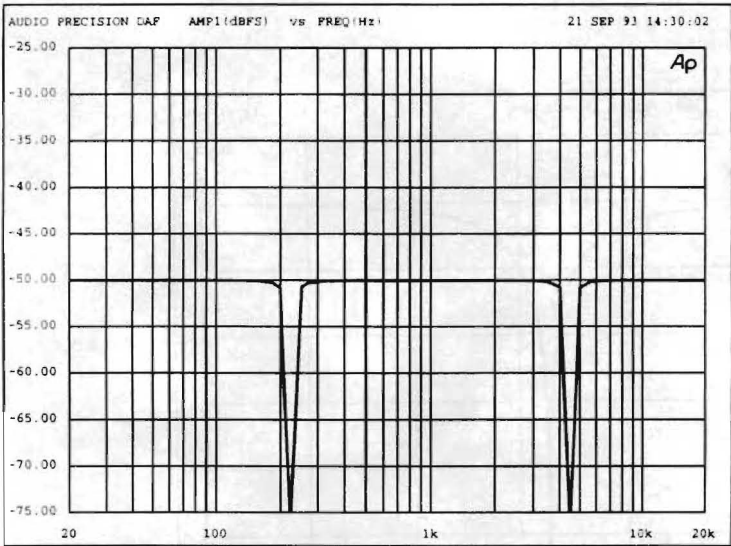
HIGH-PASS and LOW-PASS FILTERS: 12dB/octave
HPF @ 10, 20, 60, 200,600 Hz LPF @ 600Hz, 2kHz, 6kHz, 20kHz



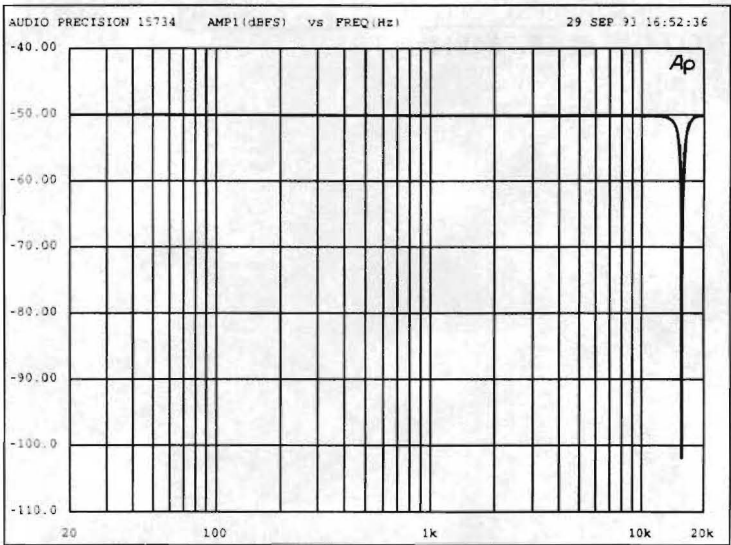
BAND-PASS; Q=1, +/-20dB @ 20, 60, 200, 600Hz, 2kHz, 6kHz, 20kHz



DETAIL OF NOTCH @ 15.734kHz



TYPICAL NOTCHES, Gain = -60dB



NOTCH @ 15.734 kHz

NOTE: Each curve comprises 60 sample points only, with straight line interpolation.

System Administrators

These users can run the User Management Application and alter the User Database by adding and removing (and altering the details of) ordinary users. They also have access to all SADiE projects. This is to prevent a lowly pip-squeak of a user creating a project that cannot be accessed by anyone, however powerful.

There is no restriction on the number of System Administrators that there can be in a User Database, but for security reasons it is advisable to keep it to a minimum.

System Administrators can only be created by the Super System Administrator.

Super System Administrator

This is the most powerful user of all. Each User Database contains only one Super System Administrator, who is appointed when the database is created.

Super System Administrators can run the User Management Application and alter the User Database by adding and removing (and altering the details of) System Administrators and ordinary users. They also have access to all SADiE Projects.

SADiE SETTINGS FILES

User ini files

Every user in the User database will have their own settings file. A user ini file has a filename of <username>.INI, where <username> is the first eight characters of the user's username. The files are derived initially from SADiE3.INI (situated in the c:\windows directory)

These 'INI' files contain information on every setting in the SADiE program - fundamental things such as sample rate, record input, as well as more obscure functions hidden away inside the Setup pages. These settings are carried from session to session, so that if you change a setting, it will stay that way until you change it again. NOTE that **HOTKEYS** are stored here.

If an anonymous user logs on (presses SKIP in the login dialog) then they will be considered to have a username of DEFAULT, and therefore will use the DEFAULT.INI user ini file. It is therefore important to bear in mind that all anonymous users will share one ini file.

You can find out which user INI file is being used at any given time by opening the settings view and looking at the filename that appears in the title bar of the window.

User ini file directory

The user 'INI' files are kept in a separate directory on a pc drive. This will be created automatically when you run the new version of SADiE (or the User Management application). By default it will be created in the same directory that contains the current User Database and will always be called 'settings'. Initially the directory will be empty, but as users log onto the system, user ini files will be created in this directory.

APPENDIX ABCDE - USER MANAGEMENT

INTRODUCTION

User Management allows full access to SADiE3 to be restricted to a list of specified users, held in a User Database. The SADiE3 Project system further restricts access to individual Projects to a list of specified Project users (a subset of the User Database).

The 'SADiE3 User Management' application is a separate Windows-based utility for creating and altering a User Database.

All installations require a User Database even if it only contains one user. In a one-user installation the User Management Application is not strictly required, as SADiE3 will construct a default User Database the first time it is run if one is not found.

You will need to run the Application if:

- you are setting up a multi-user system,
- additional users need to be added to a system,
- an existing user wants to change their username,
- you want to point SADiE3 at a different User Database (perhaps on a networked drive).

Each user has their own username, password (optional), management privilege level, and SADiE settings file.

USERNAMES

A 'username' is a unique name given to each user and can be up to 16 characters long. Valid characters are the lowercase letters of the alphabet, a - z, the digits 0 - 9 and the underscore character `_`. The application will validate all input, so there is no possibility of entering an illegal character accidentally.

PASSWORDS

Passwords are optional, although recommended in any system that has more than one user. The same rules for usernames also apply to passwords.

MANAGEMENT PRIVILEGE LEVEL

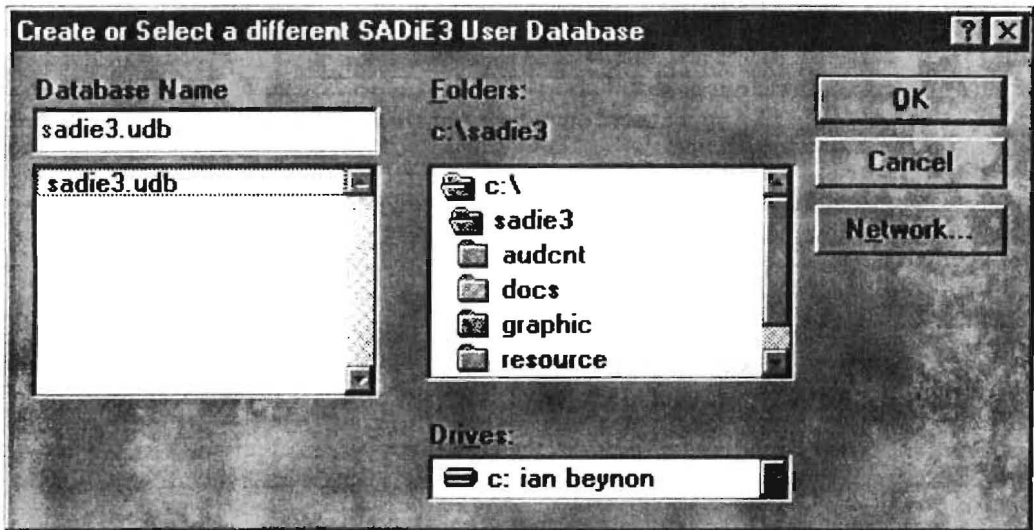
This determines whether a user can run the User Management application, and what they can do within it. It also allows certain users access to all SADiE Projects.

There are three levels of privilege:

Ordinary Users

Most users will be created as ordinary users. They can run SADiE3 and gain access to projects that they are signed on to. They cannot run this application and therefore have no power to alter the User Database.

Answering 'Yes' will launch the 'Create or Select a different SADiE3 User Database' dialogue box:

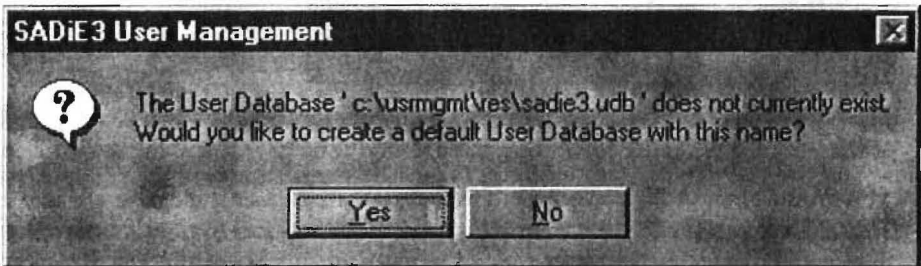


This is a standard Windows browser window and allows you to open the folder where you would like the User Database created, or locate one that already exists (perhaps on a network drive). If a User Database exists in a selected folder, it will appear in the left hand list box.

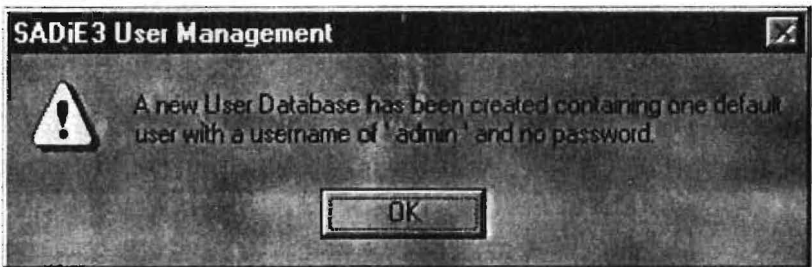
A User Database always has the filename SADIE3.UDB.

Once you have chosen your folder, press OK. If a User Database already exists, the Log In dialogue will be displayed and you should log in using the identity of one of the users in the database.

Alternatively, if no User Database exists, the application will automatically offer to create one for you, displaying the following message:



Replying 'No' will terminate the application while 'Yes' will create a default User Database and display the following message:



Note that the one user added to the User Database at creation time is given the username 'admin' and no password. As mentioned previously, this user will be a Super System Administrator. The user will also be granted the highest possible SADiE3 privilege level.

SADiE Settings Files

Just as you can save your desktops to DSK files you can save your current environment (i.e. your user ini file) to SST files. This is an advanced feature that most users will probably never venture into, but it can be found under the Environment menu on the main application menu system. Settings files can be saved anywhere and are accessible to all users (who have access to where you save them).

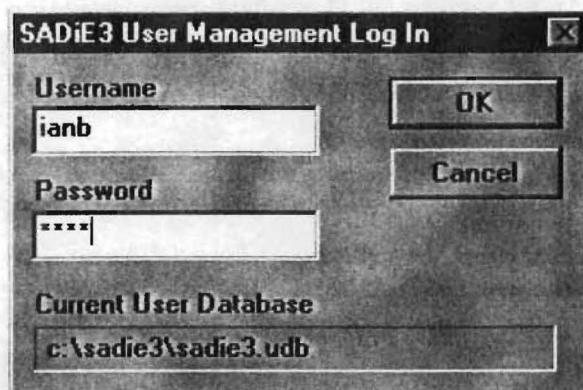
Loading a setting file will instantly reconfigure your settings and screen to the way it was when you saved the settings.

USING THE APPLICATION

CREATING A USER DATABASE AND LOGGING IN

What happens when you run the User Management application for the first time depends on whether you have already run SADiE3 on the machine in question.

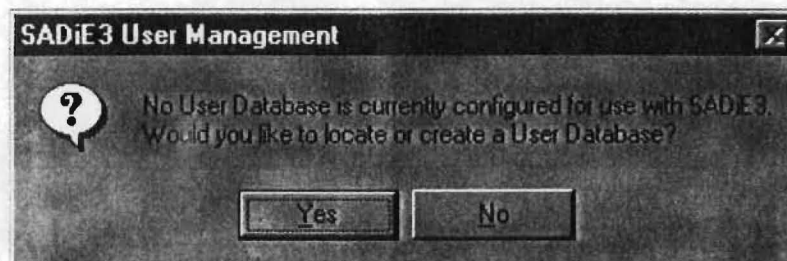
- If you have already run SADiE3, the application will automatically select the User Database that SADiE created, and display the Log In dialogue box.



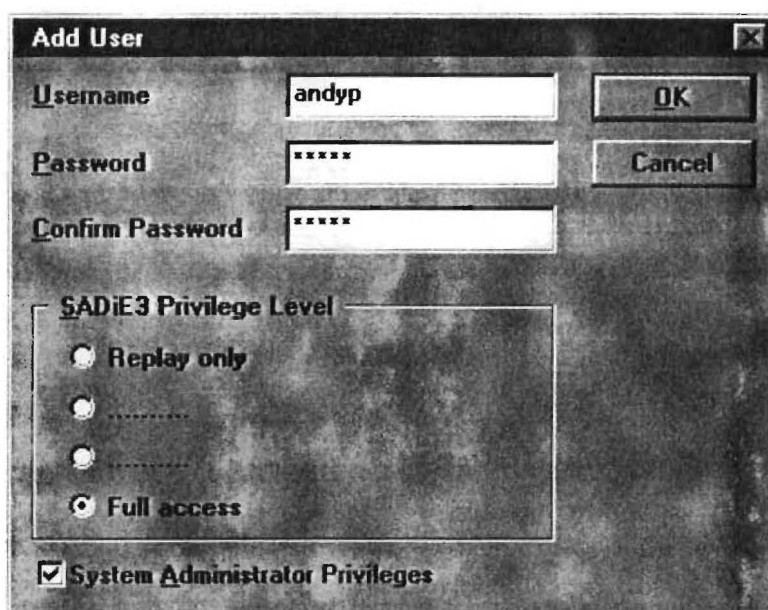
The path of the User Database currently being used by SADiE3 will be displayed at the bottom of the box, as a reminder for administrators who may be maintaining several User Databases.

You should enter the Username (and password if there is one) of the user that was specified when SADiE3 was run for the first time. This user will be a Super System Administrator, who is always the first user to be inserted into a User Database when it is created.

- If you have not yet run SADiE3, the following message box will be displayed:



If you answer 'No' at this point, the application will shut down since a User Database is required for it to run successfully.



From here you can enter a new user's username, password (optional), and their SADiE privilege level.

If you enter a password you must enter it in both the 'Password' and 'Confirm Password' boxes.

If you are the Super System Administrator, you can also use the check box to make the new user a System Administrator.

When you have finished, press 'OK' to add the new user to the system.

EDITING AN EXISTING USER'S DETAILS

To edit an existing user's details, select the user in the main window and press the 'Edit...' button (or just double click on the user). This will launch the 'Edit User' dialogue box, which is identical to the 'Add New User' dialogue box described above.

If you are the Super System Administrator, you can use the check box to grant or revoke System Administrator status.

When you have entered all of the new details, press 'OK' to confirm, or 'Cancel' to abort.

REMOVING A USER

To remove an existing user from the system, select the user in the main window and press the 'Remove' button (or press Alt-R). You will be asked for confirmation before the user is removed.

Remember that only the Super System Administrator can remove System Administrators from the system. If you do not have the privilege level to remove a particular user the 'Remove' button will automatically be disabled.

SAVING YOUR CHANGES TO THE USER DATABASE

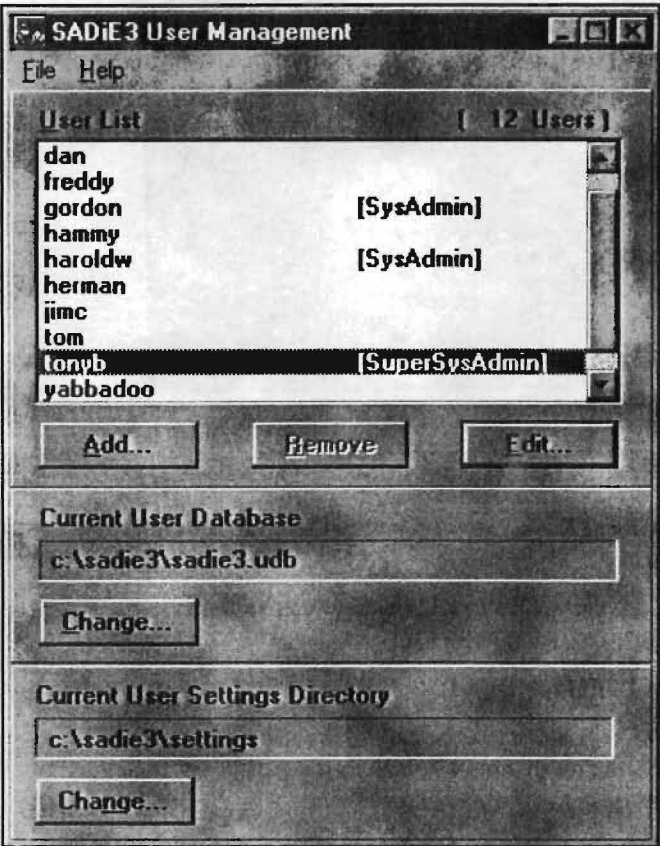
As you add, edit and remove users from the current User Database, your changes are not actually being saved to the real database file. This will only happen when you:

- select 'Save changes to User Database' from the File menu, or
- exit the application (from the File menu).

Once the message box has been closed, the User Management Log In dialogue box will be displayed. You should now enter 'admin' as a username and no password.

THE MAIN WINDOW

Having successfully logged on to a User Database, the main window of the application will be displayed. It is from here that all the user management tasks can be performed.



The main part of the window is occupied by a list displaying all the usernames in the selected User Database. The list is ordered alphabetically with a total user count at the top right. Initially you will only see one user - the default "admin" user that was automatically inserted when the database was created.

The user's Management privilege level is shown against each username (in the case of ordinary users, nothing is displayed).

ADDING A USER

To add a new user to the system, select the user in the user list and press the 'Add' button (or press Alt-A). This will launch the 'Add New User' dialogue box

A Username of either SADIE3 or DEFAULT is not allowed.

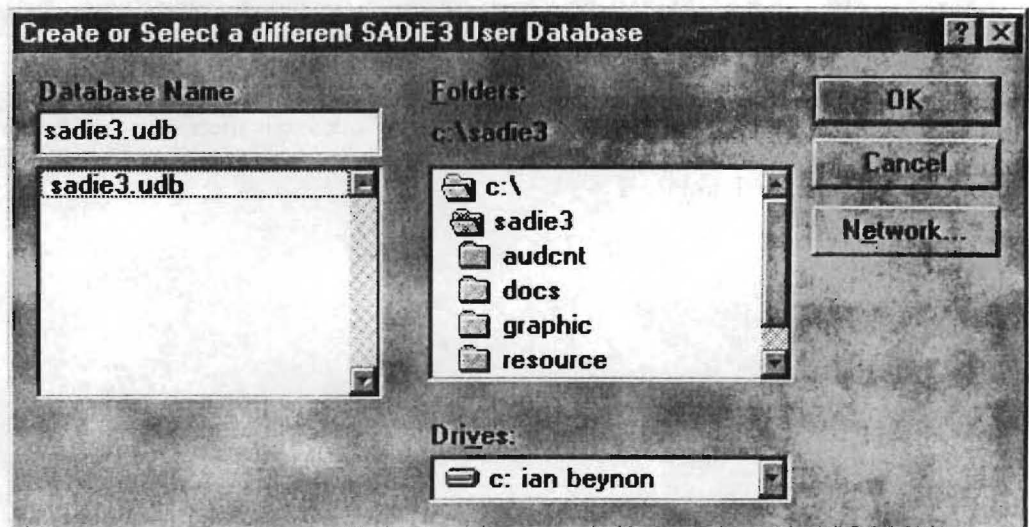
IMPORTANT POINTS

- Whilst User Management and SADiE3 are separate applications, they both reference the same User Database (on any given PC).
- The start-up of SADiE3 will not be affected by any User Management changes until the database is saved. This happens when the User Management application is exited (or when File| Save Changes... is selected).
- When a new User Database is created, one Super System Administrator is added to the database automatically, with the username 'admin' and no password. You are advised to give this user a password as soon as possible.
- The User Database is heavily encrypted on disk and is effectively unhackable. Any tampering with a User Database file is likely to result in it failing to be read correctly. The usual symptom is lost users.

SELECTING A DIFFERENT USER DATABASE

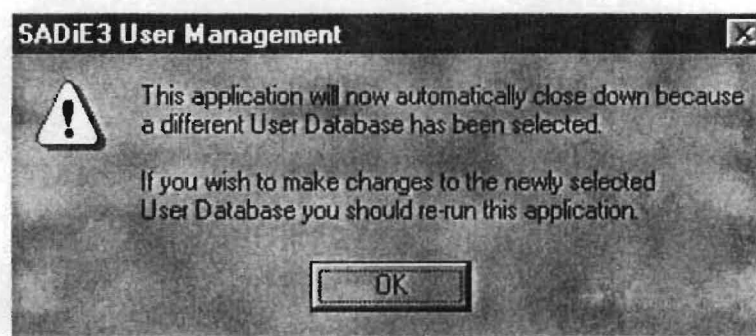
Occasionally it might be necessary to point the User Management application and SADiE3 at a different User Database. This is likely to occur if you want a previously isolated machine to refer to a User Database on a network drive. To change the currently selected User Database press the 'Change...' button under 'Current User Database' in the main window.

This will launch the User Database browser dialogue box:



A User Database always has the filename SADiE3.UDB.

Locate the new User Database and press OK. The application will confirm that it has selected the newly chosen database and advise you that it will now shutdown:



This is done for security reasons. Should you wish to make changes to the newly selected User Database you will have to re-run the application and log in accordingly.

SELECTING THE SETTINGS DIRECTORY

You can alter the location of the settings directory, where User Settings files are saved to. It will probably not be required in many situations (provided the User Database location has been configured to a sensible location). However, this is the place to alter it should the need arise. The procedure is similar to changing the current User Database above.

FEEDBACK

We are always interesting in hearing what our customers think about us and our products. Many of the features in SADiE have appeared as a result of customer requests, so if there's a particular way that you would like SADiE to work for you, tell us! If you have any ideas for cool new features or products, either hardware or software, send an email to:

feedback@sadie.com

If you're lucky, your ideas may even appear in the next software release!

APPENDIX ABCDEF - TECHNICAL SUPPORT

If you need technical advice, Studio Audio's SADiE customer support lines are usually available from 9 a.m. until 11p.m. every day. Please remember to allow for daylight saving when working out time differences.

Outside office hours the support will be covered by a mobile telephone. In order for us to maintain this as a free service, we ask you to restrict out-of-hours calls to real emergencies, and to please check in the manual or help-file before you call. For local public holidays and surrounding weekends, customer support hours will be reduced - the times and the mobile number will be announced on the office answer-phone message.

UNITED KINGDOM

Phone: +44 (0) 1353 648 888

Fax: +44 (0) 1353 648 867

REST OF EUROPE

Phone: +49 (0)711 396 9380

Fax: +49 (0)711 396 9385

NORTH AMERICA

Phone: +1 615 327 1140

Fax: +1 615 327 1699

WEB SITE

There is a SADiE home page on the world wide web. The address is: <http://www.sadie.com>

SADiE FORUM

There is an independently maintained users' group on the Internet. This is run as a forum for users of SADiE and related products to share advice, tips and news.

To subscribe to the forum, send an e-mail to the following address:




`majordomo@lists.uoregon.edu`

Type the following command as the body of your e-mail message:

`subscribe sadie
end`

You will then shortly receive a welcome message with details on how to post messages to the entire group, remove yourself from the list, etc. All messages posted to the group will now be automatically sent to your e-mail address.

Studio Audio customer support will monitor the correspondence and reply when necessary to advise on any subject.

 EDL	An Edit Decision List. A term that has been used in video editing for some time. In SADiE, the EDL is the list of instructions that the system uses to play back the required Clips at the required times. It is a computer file that will need to be saved and can be later loaded and modified, just like a document on a word processor. You can think of the EDL as your script, cue sheet or running order, and the Tracks as the raw material. An EDL is graphically displayed in SADiE by the Playlist, where it is created by placing Clips in the required order.
EDL Entry	When Clips are placed in the Playlist they become EDL Entries as they then have a particular EDL replay time. Any changes made to an EDL Entry (such as level changes or adjustments to the in and out points) then only apply to that particular occurrence of the Clip and will not affect Clips in the Clipstore, or other EDL Entries of the same Clip.
Frame Rate	The number of video or film frames per second.
Hotspot	The hotspot is a useful marker that you can set at a particular point within a Clip or Entry and then use as the reference when placing it in an EDL. For example, when you place a sound effect of a screech of car tyres followed by a crash, it's probably the crash that you want to position accurately. The hotspot may actually be <u>outside</u> the in and out points of the Entry you are placing - you wouldn't include the sound of the clapperboard recorded at the start of a dialogue Track, but you can still use it as the hotspot in order to place Entries from that track in sync. Also useful for "back-timing", to get a certain bit of music to coincide with the end of speech, etc. To set or adjust the hotspot, see Chapter 5, <i>Editing</i> , and the Clip Details window section of Chapter 4, <i>Arranging an EDL</i> . To use the hotspot when placing EDL Entries, see the "Autoplace" section of Chapter 4.
 Input	In SADiE, one of the physical input connections to the system. See Scrub .
 C	See Timecode .
MIDI	Musical Instrument Digital Interface. A signal sent between electronic musical instruments containing information determining what notes to play, when and how.
MTC	See Timecode .
Output	In SADiE, one of the physical output connections to the system.
Playlist	The window on the screen which shows you graphically the work you are creating (i.e.




APPENDIX ABCDEFG - GLOSSARY OF TERMS

Explanations of terms shown in italics are specific to SADiE™.

- A-D or ADC** Analogue-to-Digital (Converters).
- AES/EBU** The Audio Engineering Society / European Broadcasting Union. Often refers to the professional digital audio interface standard which uses XLR connectors.
- Clip** A Clip is any part of (which may be all of) a Track and can have its own name. It is not actually a separate recording, but a set of instructions of how to Play audio: between what in and out points within a Track, at what level and with what kinds of fade-in and fade-out.
- Clipstore** The Clipstore is simply a list of Clips. You will always find whole Tracks here, and may choose to use it to store clips which you have topped and tailed for later use. This is like keeping a load of small reels of leadered tape inserts on the shelf before you put them into a piece of work. Different Clipstores can be saved for different projects.

NOTE: Deleting a Clip from a Clipstore does not mean you have deleted any audio, as the Track will still be on the SCSI disk. You will have simply deleted one particular version (in and out points, fades and overall level) of how to replay the audio.

- Current-time cursor** The vertical dotted line in the Playlist which passes over the EDL Entries like a playback head.
- D-A or DAC** Digital-to-Analogue (Converters).
- Discontiguous** Usually referring to timecode and meaning having jumps in the recorded value. These will result, for example, when a location machine recording time-of-day timecode is stopped for a break.
- DSP** Digital Signal Processing, or Processor. The digital circuitry which can manipulate digital audio to achieve fades, EQ, Dynamic processing, etc.
- EBU** The European Broadcasting Union. Often used to refer to the European timecode standard, with a frame rate of 25 f.p.s.



them, and other settings displayed by selecting them in the Setup window. (Menu bar View | Setup window. Double-click on "General", then select "Status Displays"). The status bar also shows a description of any button that the mouse pointer is resting over.

Streams

EDL Entries in the Playlist are placed on Streams, each of which is routed to a channel strip of the Mixer to control the playback of the audio. A stereo Entry sits across any two adjacent Streams, a mono Entry only needs one. The Streams are therefore similar to the tracks of a multitrack tape machine but allow editing and overlapping within individual Streams and moving audio Entries around in time. There is no limit to the number of Streams you can add to the Playlist, only to the number of Entries the hardware of your system can play at once. The Streams are independent of the physical outputs of your hardware system and are routed to them by SADiE's Mixer.

SVGA

See VGA.

Time bar

The white calibrated "ruler" at the top of the Playlist which indicates the position of the current-time cursor in terms of EDL time.


Timecode

A digital timing signal which, when recorded alongside sound or picture information, can be used to synchronise recordings made on separate media.

LTC Longitudinal Time-Code. Any Timecode stored or sent linearly, in the same way as audio. When the tape stops, so does the timecode.

VITC Vertical Interval Timecode. Timecode embedded in a video signal so that it is sent continually and can be read from video recorders on a still frame.

MTC MIDI Time-Code. A way of sending timecode via MIDI interfaces.

Track

A Track is a whole, original audio recording, held on a SCSI disk as a sound file, and running from when you started recording to when you stopped. It is identified by a name and will remain on the disk until deliberately deleted. It has properties set when it is recorded, such as whether stereo or mono, what sample rate, etc. Don't confuse it with the term "track" as applied to multitrack tape machines (see **Streams**) - it's closer to the "track" on an LP or CD and recalls SADiE's origins as a simple stereo music editor!

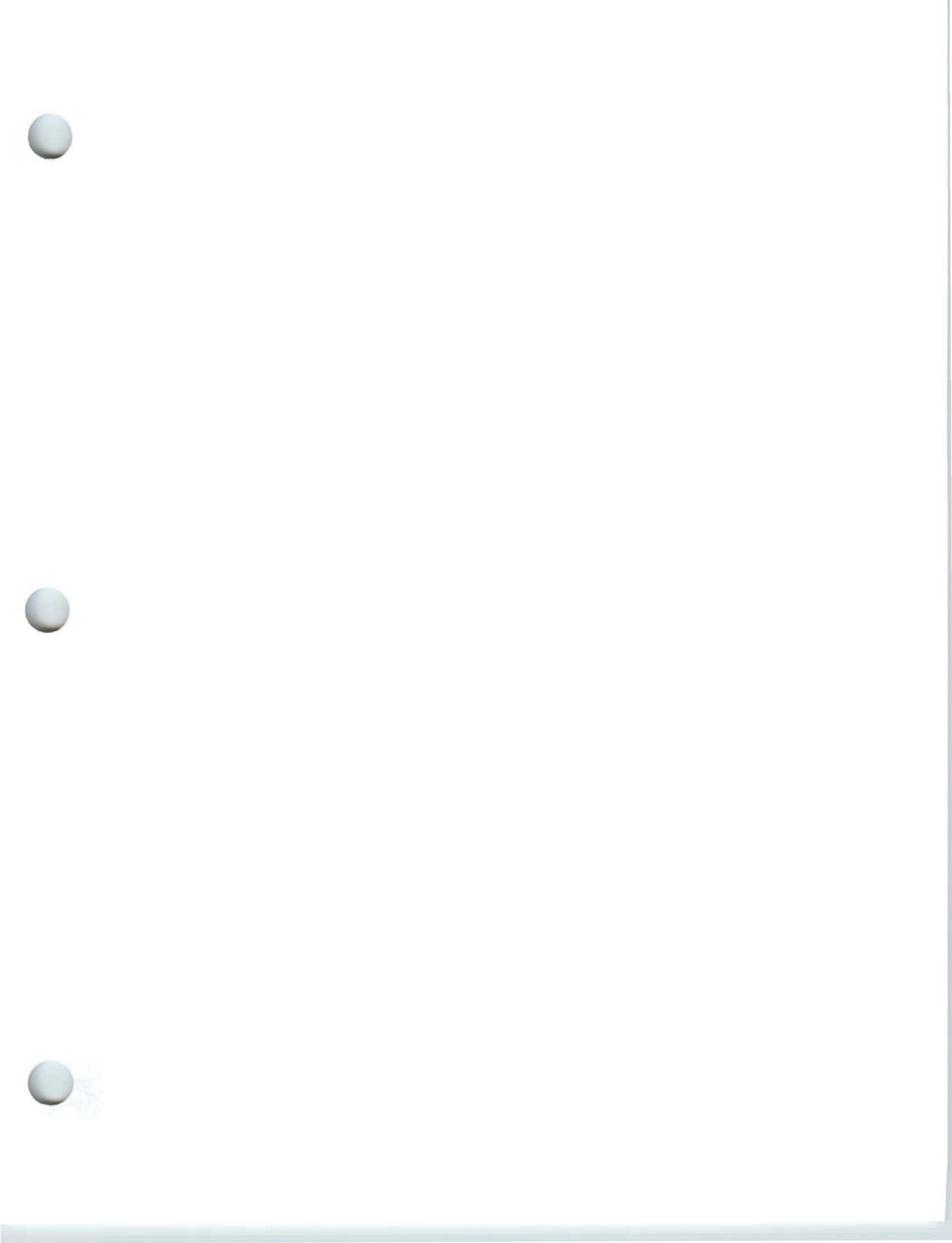
VGA

Video Graphics Array (or Adapter). A standard interface between PCs and video display monitors. SVGA (Super VGA) is a higher resolution version.

VITC

See **Timecode**.

	the EDL). It acts as your tape machine. EDL Entries are shown as coloured blocks like bits of tape, or as profiles showing the level of the audio. They are positioned to be replayed when the current-time cursor passes over them like a playback head. Fade-ins and fade-outs are shown as slopes to the front and rear of the blocks. Editing is done by making "cuts" which divide Entries into two, so that one or the other can be removed, or the in and out points can be adjusted to fine edit the audio.
Project	A Project is a useful way of looking after your work on a job-by-job basis. EDLs, the layout of the internal Mixer to play them and Clipstores are all stored as components of a SADiE Project. A list of relevant Tracks is also kept for each Project.
SADiE	The Studio Audio Disk Editor.
Sample Rate/ Sampling Frequency	The rate at which: 1. Analogue audio signals are sampled and converted to digital audio. 2. Digital audio is replayed and so may be converted to analogue. Audio recorded at one sample rate but played back at another will sound speeded up or slowed down.
Scrub	<p>To move audio at a variable speed whilst hearing it, usually while adjusting or locating an edit point. There are two modes of scrubbing in SADiE:-</p> <p>Jog mode is the equivalent of rocking the reels of a tape recorder back and forth: The more you move the mouse left-right, or the hardware controller wheel, the more audio you hear.</p> <p>Shuttle mode is the equivalent of spooling the tape across the heads: The more you move the mouse up-down, or the wheel, the faster the audio goes forward or backwards. This is useful for losing large amounts of material at an edit point, just like dumping tape onto the floor.</p>
SCSI	Small Computer Systems Interface. A standard interface for disk drives and other storage devices.
Shuttle	See Scrub .
SMPTE	The Society of Motion Picture and Television Engineers. They set professional timecode standards.
SPDIF	Sony/Philips Digital Interface - the consumer digital audio standard.
Status Bar	A bar along the bottom of SADiE's main display showing important current settings, such as Sample Rate and Frame Rate. The settings can be changed by right-clicking on



XACT	Studio Audio's Analogue Converter and Timecode card.
XLR	A professional audio connector, usually a three-pin plug/socket carrying balanced audio signals.
XS	Studio Audio's floating point digital audio processing card. The XS and XACT cards are usually fitted in the PC.

CHECK DISK

This option checks the File Allocation table (F.A.T.) for errors. The F.A.T. is like a table of contents for the disc. If the F.A.T. is incorrect, then software will not be able to find the files it is searching for.

On pressing the Check Disk option, you can choose NO to merely check for inconsistencies in the F.A.T. and report on them if they exist. This will not change the contents of the disc at all, and is the only Disk Checker option that is safe. If you choose YES any errors found will be repaired, and reported to the screen - you will be warned of the possible effect of any changes.

DISK RECOVERY

When audio files are recorded in the SADiE3 software, each file can contain special information in its file header. Disk Recovery will search the disc for these special headers, and reconstruct the disc's F.A.T. to use the new files it has found. NOT ALL FILES have the special header. This header is unique to SADiE's own native file formats and hence is only available for the following files:

- SADiE3 format disc - SADiE3 format (native) files
- SADiE2 format disc - SADiE2 format (native) files THAT HAVE BEEN RECORDED USING SADiE3 software.

The first thing Disk Recovery does before attempting the header search is a disc format. Any files without this header will be lost. Files that do not have the header and WILL BE LOST include:

- SADiE2 format files recorded in SADiE2 software; WAV files; Lightworks format files; any DOS file that has been copied onto the drive via DOS to SCSI transfer; every file on a DOS, FAT16 format drive.

However if all your recordings are in SADiE3 in a native format, then it may be possible to retrieve files that have been deleted. When files are deleted, they still exist on the disc, and it's only their entry in the F.A.T. which is removed. However if more audio has been recorded or copied to the drive since the file was deleted, the chances of recovering it are slim, because either the special header, or some of the data itself, may have been over-written.

You must back up any audio that you wish to retain, before performing the Disk recovery. Because the process formats the disc before starting, it's safer to assume that your audio could be wiped. This should only be used in extreme circumstances.

FORMAT

The format button provides the same options for disk formatting as are available within the SADiE application itself - Format to SADiE2 or SADiE3 format.

SURFACE SCAN

When disk drives are manufactured, they generally have some *medium errors* - areas of the disk that cannot be written to or read from due to a fault. This is quite normal, and disks mask these faults from any software, by keeping their own table of medium errors, and not allowing software to use these bad areas.

APPENDIX ABCDEFGH - SADiE DISK CHECKER

The SADiE Disk Checker is a separate software application that provides some tools for checking your SCSI audio disc drives. To run the Disk checker, FIRST EXIT SADiE, press the Windows START button, select Programs; SADiE , then "SADiE Disk Checker - use with care."

Disk problems, loss of data and related warning messages can be very disturbing, but the SADiE software can help you fix some problems if they do occur. As its icon suggests, this program should be used with great caution. Almost every option can change the contents of your disc drives. If you have any doubts at all about the use of this - seek advise first.

WHAT'S IT FOR ?

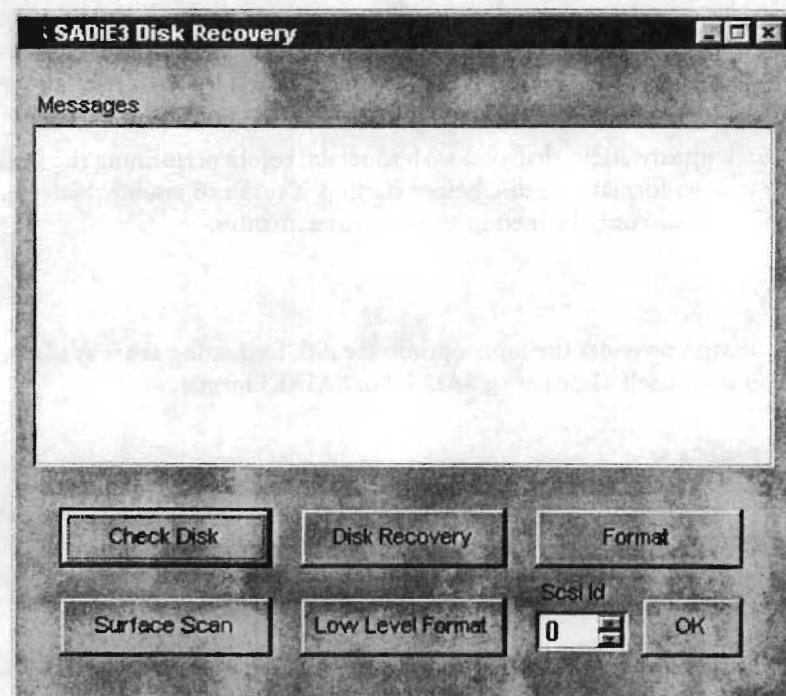
Disk checker provides an expert user diagnostic and repair tools to help deal with disc drive problems. Disk Checker can help deal with three different types of problems:

1. Undelete, or even unformat, if a user has deleted one or more files by mistake.
2. Filing structure problems. Much as with a DOS drive, it's possible for a drive's File Allocation Table to become mis-aligned with the actual files
3. Medium errors. Disk checker can perform a surface scan and low level format on a drive.

DISK CHECKER OPTIONS

Note that some options, particularly on larger discs, or discs with many files, may take some time to complete. You will be warned when you choose a particularly time-consuming function. The screen may appear idle at times - watch the Messages... word in the top left of the window. The dots will update to show that there is some activity.

You can use these utilities only on one disk at a time - select the ID of the disk you wish to operate on.



Again, if the disc is continually deteriorating, and medium errors keep appearing, even after you've low level formatted or run Surface Scan, then this will become very inconvenient, and you should really replace the drive. After a time you may notice the capacity of the drive decreasing slightly as the bad areas get larger.

Low level format will irretrievably empty the disc, and so, again, make sure you have a safe backup of anything you want to keep.

However, it is not unusual for medium errors to appear on a disk drive during operation. Reasons are many - mishandling, moving a drive while it's in operation, deterioration or physical wear are some. Small numbers of these medium errors are generally considered acceptable, however if a drive continually gains medium errors it ought to be replaced. Software will not be able to read from areas of the disk with medium errors, and thus, from a SADiE point of view, the audio would be corrupt.

The Surface Scan function performs a scan of the surfaces of the disk drive, searching for medium errors. When one is found, it is reported to the screen, and then Surface Scan "repairs" the medium error. This involves retrieving any data that can be read in the bad area, and moving this to a different, uncorrupted part of the disc. Any data that cannot be retrieved will be replaced with silence (and hence the audio file may drop out) The F.A.T. is then updated to link the file to the new location on the disk. Note that only the affected area is moved, not the whole audio file, and hence this will fragment the file a little - although this is preferable to corrupt or un-playable audio. Also the F.A.T. is updated so that the bad area is not used again by SADiE.

Areas marked as medium errors in the F.A.T. by Surface Scan will not be blanked down by the SADiE disk format function - it is aware of these and retains these for future use.

Because Surface Scan can alter the contents of your drive, you should backup any material you need before running this routine.

Additionally, SADiE itself will automatically offer to repair medium errors if it finds them. If, during playback, SADiE detects a medium error, the following warning will appear



You have the choice to ignore this and continue, or SADiE will fix the error there and then, in the same way that the Surface Scan option of Disk Checker handles medium errors. This should be a relatively quick operation, and should allow you to continue working if you are in a hurry. However exiting SADiE and running Disk Checker and Surface Scan may give you a more permanent solution.

LOW LEVEL FORMAT

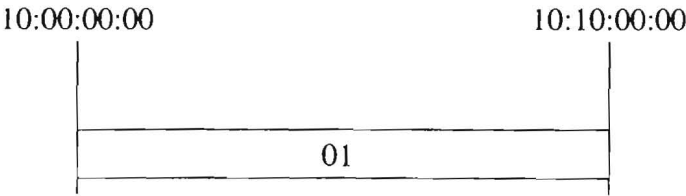
Disk Checker's Low level format option runs the drive's own Low level format routine, which, in a similar way to Surface Scan, searches for medium errors on the drive, and then updates the drive's internal table of bad clusters. This is more permanent even than Surface Scan, because the drive will then hide the bad areas from the software.

The entries

A general entry:

001	01	A1	C		00:00:10:00	00:10:10:00	10:00:00:00	10:10:00:00
-----	----	----	---	--	-------------	-------------	-------------	-------------

This would give the following entry in the SADiE playlist on stream 1:



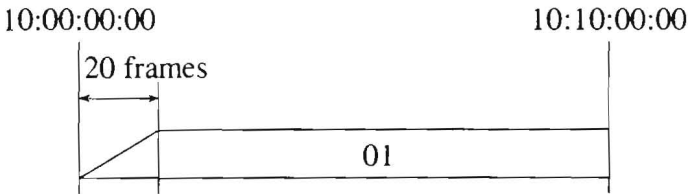
A fade in is recognised as one of the following:

001	01	A1	D	20	00:00:10:00	00:10:10:00	10:00:00:00	10:10:00:00
-----	----	----	---	----	-------------	-------------	-------------	-------------

Or

001	BLK	A1	C		00:00:00:00	00:00:00:00	10:00:00:00	10:00:00:00
001	01	A1	D	20	00:00:10:00	00:10:10:00	10:00:00:00	10:10:00:00

This would give the following entry in the SADiE playlist on stream 1:



A fade out is recognised as the following:

001	01	A1	C		00:00:10:00	00:10:10:00	10:00:00:00	10:10:00:00
002	01	A1	C		00:10:10:00	00:10:10:00	10:10:00:00	10:10:00:00
002	BLK	A1	D	20	00:00:00:00	00:10:10:20	10:10:00:00	10:10:00:20

APPENDIX ABCDEFGHI - EDL FORMATS
SUPPORTED BY SADiE

This document outlines the text based EDL files that are supported by SADiE. Confusion arises when variations on a specific format are loaded into SADiE. There does not appear to be any strict rules as to the content of these files, which may cause problems when the file is being read and loaded into SADiE. To avoid these problems we have listed the types of entries that we handle. If a file contains lines other than these it is possible it will fail to load completely.

CMX

A line for an entry in a CMX file contains the following information:

Entry number	Reel name	Channel	Edit type	Fade length (if edit type is 'D')	Source start time	Source end time	Program start time	Program end time
--------------	-----------	---------	-----------	--------------------------------------	-------------------	-----------------	--------------------	------------------

Entry number

These are 3 digits and are in the range of 001 to 999.

Reel name

The known maximum lengths for different formats are as follows:
CMX 340 – 3 characters, 0-9, that allow reel numbers from 1 to 253. This same set of reels is allowed with a 'B' on the end.
CMX 3400 – 3 characters, 0-9, that allow reel numbers from 1 to 999. This same set of reels can also have a 'B' on the end.
CMX 3400A and CMX3600 – allow 8 characters, A-Z and 0-9.

Files have been seen with longer reel names than those specified and so there is a limit of 10 characters in SADiE when importing a CMX file. A reel name of 'BLK' or 'BL' is used to define a silent entry or a fade to/from silence.

Channel

The channel information for CMX files is given in Table A. Additional channel information is placed on the next line, see the comment section below for more details.

Edit type

SADiE will only use edit types of 'C' for a cut and 'D' for a dissolve. All other edit types are ignored. The dissolve time for an entry is to be given in frames.

Source and program times

These times are given in frames. See the comment section below for how the frame rate is handled when reading the file. It is possible the EDL will not be loaded correctly if the correct frame rate is not selected in SADiE.

This will set the frame rate to be 29.97 drop frame.

Channels

The table in Table A shows the channel information that is used in a CMX EDL file.

Audio mapping

The following line is used to determine the audio mapping of the entry in the file:

```
0072 800    A2 C      00:00:00:00 00:00:02:20 10:02:02:23 10:02:05:18
COMMENT: AUDIO MAPPING  FROM CH1 TO CH2
```

This indicates that the entry on stream 2 uses audio from track 1.

Any other lines containing information regarding, for example, the speed of the video playback, the freeze frames and other channel mapping formats, will be ignored.

Sony

The format of the lines for fade information will be the same as those for the CMX format EDLs.

It can be seen that additional information is placed at the end of the line for channels 3 and 4. The channel information is described in the table in Table A.

Grass Valley (GVG)

The format of the entries in these EDLs is similar to that of the CMX files. Only files containing cut entries have been tested. EDLs have been found where the entries are not in program time order. This has not posed any problems when importing to SADiE.

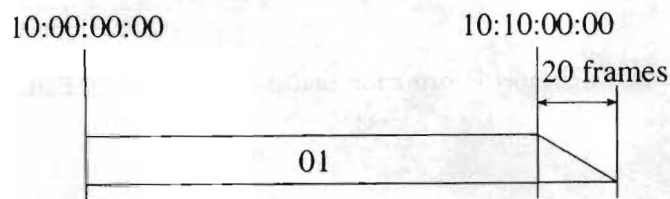
Entry number

This has been found to be either 3 or 4 digits in length.

Channels

The channel information for this type of EDL is given in Table A.

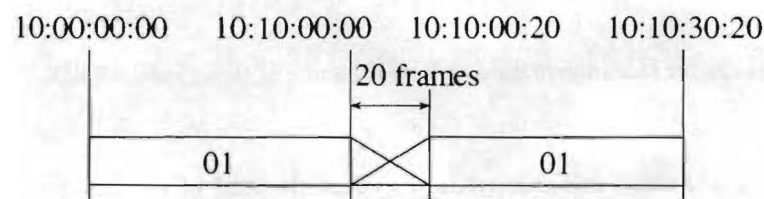
This would give the following entry in the SADiE playlist on stream 1:



This gives the following lines for a crossfade:

001	01	A1	C		00:00:10:00	00:10:10:00	10:00:00:00	10:10:00:00
002	01	A1	C		00:10:10:00	00:10:10:00	10:10:00:00	10:10:00:00
002	02	A1	D	20	03:00:30:00	03:01:00:20	10:10:00:00	10:10:30:20

This would give the following entries in the SADiE playlist on stream 1:



Comment lines

The following comment lines are handled in the CMX conversion.

Frame rates:

If the setting is used for multiple frame rates it is possible to alter the frame rate for each reel before the EDL is loaded into the playlist. When a frame rate change line is encountered, all subsequent entries will use the new frame rate. The user is asked whether the system frame rate in SADiE is to be altered, if a frame rate is detected that is different to the current setting.

FCM: NON-DROP FRAME

This will set the frame rate to be 29.97

FCM: DROP FRAME

TABLE A

					EDL channels						
					GVG 6.0	CMX 340	CMX 3400 & 3600		Sony 9000		LW Multi-channel
Maximum channels supported:					Audio - 4 Video - 1	Audio - 2 Video - 1	Audio - 4 Video - 1		Audio - 4 Video - 1		Audio - 8 Video - 0
V	A1	A2	A3	A4			In edit line	Chan 3 & 4 (note following edit line)	In edit line	in edit extension	In edit line
	*				A1	A	A		A1		A1
		*			A2	A2	A2		A2		A2
			*		A3		NONE	AUD 3	A	A3	A3
				*	A4		NONE	AUD 4	A	A4	A4
	*	*			A12	AA	AA		A1A2		A12
		*	*		A23		A2	AUD 3	A2	A3	A23
			*	*	A34		NONE	AUD 3 4	A	A3A4	A34
	*		*		A13		A	AUD 3	A	A3	A13
		*		*	A24		A2	AUD 4	A2	A4	A24
	*			*	A14		A	AUD 4	A1	A4	A14
	*	*	*		A123		AA	AUD 3	A1A2	A3	A123
	*	*		*	A124		AA	AUD 4	A1A2	A4	A124
	*		*	*	A134		A	AUD 3 4	A1	A3A4	A134
		*	*	*	A234		A2	AUD 3 4	A2	A3A4	A234
	*	*	*	*	A1234		AA	AUD 3 4	A1A2	A3A4	A1234
*						V	V		V		
*	*				A1V	B	B		VA1		A1
*		*			A2V	A2/V	A2/V		VA2		A2
*			*		A3V		V	AUD 3	V	A3	A3
*				*	A4V		V	AUD 4	V	A4	A4
*	*	*			A12V	AA/V	AA/V		VA1A2		A12
*		*	*		A23V		A2/V	AUD 3	VA2	A3	A23
*			*	*	A34V		V	AUD 3 4	V	A3A4	A34
*	*		*		A13V		B	AUD 3	VA1	A3	A13
*		*		*	A24V		A2/V	AUD 4	VA2	A4	A24
*	*			*	A14V		B	AUD 4	VA1	A4	A14
*	*	*	*		A123V		AA/V	AUD 3	VA1A2	A3	A123
*	*	*		*	A124V		AA/V	AUD 4	VA1A2	A4	A124
*	*		*	*	A134V		B	AUD 3 4	VA1	A3A4	A134
*		*	*	*	A234V		A2/V	AUD 3 4	VA2	A3A4	A234
*	*	*	*	*	A1234V		AA/V	AUD 3 4	VA1A2	A3A4	A1234

Lightworks Multi-channel

The Entries

It has been found, after discussions with people at Lightworks, that there will be no video entries as part of a multi-channel EDL. Therefore, we do not need to put in the dummy video entry that spans the length of the EDL. From this we are assuming that there is no need to insert black entries for the silence between the audio entries in the EDL. This can be added at a later stage if needed.

The format of the entries within the file is similar to that of the CMX files.

Dump reels

The Lightworks machine that was used for the test material was not able to export an EDL that contained overlapping entries using the same reel. To get around this problem it uses a dump reel. The dump reel entries are shown in the EDL file with a reel ID of "900". The program times for these entries remain the same, however, the source times used reference a separate file. The extra file should have the same name as the EDL file, but with a ".dmp" extension.

The source times for each stream, start at the EDL start time. They usually have a handle of 1 second with entries on the same stream being adjacent. The source times in the EDL file should 'fit' within the program times in the dump file, i.e. there should be enough audio for them to reference. The source times in the dump file are the actual source times of the audio. There should be no dissolve entries in the dump file as this implies that entries overlap and it would therefore require a further dump file to handle it.

NOTE:

The text based EDLs that have been described only contain one piece of channel information. The user is given the option as to whether to use this information for, the stream the entry is to be placed on, or the track of audio to use, or both. SADiE handles additional lines in the EDL for channel mapping, as described in the comment section. This allows both the stream and track information to be read from the file. This information can also be exported as part of the file if required.

Copying files from the PC	7:29
Copying files to and from the PC	7:28
Copying Tracks	7:13
Crossfades	<i>See also</i> Fades
default lengths	5:1
Current-time cursor	3:6
D	
Dailies, syncing	8:10
DAT & CD IDs	8:51
DAT IDs	8:51
outputting	8:52
DAT IDS	
inputting	8:51
DDP tapes	8:41
De-click	
Manual	6:36
De-Click	6:33
Auto	6:33
De-esser	6:21
Deleting Tracks	7:13
De-Noise	6:32
Desktop menu	
Load and Save	9:10
Desktops	
arranging, saving and loading	9:9
loading automatically when you run SADiE	9:12
Digital Limiter	6:19
Digital Varispeed	6:46
Ditectx	6:38
Disk Checker	H:1
Disk Management	7:16
Disk Recovery	H:2
Disk too Slow	4:20
Disks	
checking space on SCSI devices	7:16
Disks, audio	
changing and logging new disks	7:17
formatting	7:23
naming	7:17
Display Profile Mode	
Playlist	
Display Profile Mode	3:3
Dither	6:17
Dither	6:23
Divergence	11:11, 11:13
Draw Clip button	5:15
Drop-ins	2:5
DSP Power	4:20
Dynamics processing	6:7
E	
Edit menu	
Cut, Copy and Paste	4:6
Select All	4:5
Undo and Redo	4:14
Editing	
in the Playlist with a mouse	5:2
in the Playlist with the hardware controller	5:7
overview	5:1

using the Trim Editor	5:10
EDL entries	
moving	4:7
EDL Entries	
adding from Clipstore	4:8
changing replay levels	4:15
Copying or repeating	4:9
cutting, copying and pasting	4:6
grouping/ungrouping	4:11
locking all to maintain sync.	4:14
moving	
with Text EDL	4:19
removing from the EDL	4:6
renaming	4:6
selecting/deselecting	4:5
selecting/deselecting with the Text EDL	4:19
EDL Formats supported	I:1
EDL PQ list offset	8:43
EDL/SOURCE modes when editing	5:8
EDLs	
creating, opening and closing	7:1
pasting	4:7
Effects	
sends and returns	6:13
Emphasis	2:4
Enable Subcode reading	8:51
EQ - Equalisation	6:8
Error Message Position	9:11
Exabyte DDP tapes	8:41
Exabyte drives	7:19
Expander	6:7
Extend entry end to fill gap	10:5
Extend entry start to fill gap	10:5
F	
Faders	
deleting	6:15
drag and drop	6:15
linking / grouping	6:3
Fades	
adjusting EDL Entry fade lengths and types	4:16
adjusting in Text EDL	4:19
adjusting with hardware controller in Playlist	5:9
adjusting with mouse in Playlist	5:6
how displayed in Playlist	3:3
Fades and crossfades	
adjusting in Trim Editor	5:15
setting default	9:5
File Allocation table	H:2
File Management	7:1
File menu	
Disk Management	7:16
Load to Paste	4:7
New, Open, Close, Save, Save As	7:1
File Transfer	7:28
DOS to SCSI drive	7:30
Film Rushes (Dailies), syncing	8:10
Find New Track command	8:18
Fix up CD	8:49

INDEX

- .
- .1 11:6
- 5**
- 5.1 11:6
- 9**
- 9-pin
 - Machine Control 8:7
 - Remote control 8:7
- 9-pin control
 - setting up 8:6
 - sync 8:7
- A**
- Active Streams 4:22
- Add EDL entries 8:19
- AIFC 7:26
- AIFF 7:26
- Apogee UV22 6:18, 8:52
- Archiving 7:19
- Audio Disc Selection 12:3
- Audio input and output settings 9:2
- Auto De-Click 6:33
- Autoconform
 - Import conform list 8:19
 - Make list 8:19
 - mono recordings 8:19
 - Record Status 8:18
 - Refresh list 8:19
- Autoconforming 8:12
 - hints and tips 8:18
 - in brief 8:17
 - overview 8:12
 - setup 8:13
 - step by step 8:14
- Automation
 - displaying data 6:55
 - editing data 6:56
 - keep button 6:53
 - modes 6:53
 - overview 6:52
 - recording and replaying a mix 6:54
 - Snapshot 6:54
- Autoplace 4:9
- Autotake 2:2
- Auxiliary sends 6:8
- B**
- Backing up and Restoring work 7:19
- Backing-up and restoring work 7:11
- Backup
 - Tape Drives 7:19
- Backup files 7:12
- Backwards 4:14
- Balance, stereo
 - adjusting individual EDL Entries 4:16
- Bars and beats display 9:1
- Bounce-down 6:12
 - with processing 6:57
- Bounce-Down 4:12
- BWF 7:26
- Bypass processing 6:6
- C**
- CD
 - multi-session 8:50
 - orange book 8:48
 - track at once 8:48
- CD IDs 8:51
 - outputting 8:52
- CD IDS
 - inputting 8:51
- CD Monitor Window 8:51
- CD writing
 - Flow-through 8:44
 - Real-time 8:44
- CDR
 - Logging 7:19
- CD-R
 - Fix up 8:49
 - using SPDIF 8:52
- CDR, SCSI 8:41
- Cedar De-Click 6:33
- Cedar De-Noise 6:32
- Cedar Manual De-Click 5:24
- Check Disk H:2
- Cleanup Project 7:13
- Clip Details window 4:14, 7:5
 - using from Trim Editor 5:16
- Clip-based Automation 6:54
- Clips
 - using only one channel 7:5
- Clipstore
 - altering details of Clips in 4:14
 - Source Tracks Folder 7:12
- Clipstore menu 7:4
- Clipstore window 7:3
- Clipstores
 - Creating, opening and closing 7:2
 - overview 7:2
- Clock
 - Digital audio clock source 9:3
- CMX™ files 8:13
- Comments
 - displaying alongside each EDL Entry 3:3
 - writing comments in EDL Entries 4:18
- Compressor 6:7
- Connecting Timecode 8:1

- basic techniques..... A:1
 - setting sensitivity to scrubbing..... 9:6
 - nearest cut to current time..... 10:5
 - Move selected clips onto stream..... 4:8
 - MS Decoder..... 6:10
 - Multi-Card Systems..... 12:1
 - Multiple Audio Units..... 12:1
 - Bounce..... 12:4
 - CD Mastering..... 12:6
 - Mixer..... 12:1
 - Non-Real-Time..... 12:4
 - Playlist..... 12:1
 - Recording..... 12:3
 - SCSI Disks..... 12:3
 - Multi-session CD..... 8:50
 - Multi-Tasking..... 4:23
 - Multi-track edit lists..... 8:19
 - Mute and solo..... 3:4
- N**
- Names
- changing EDL Entry names
 - in the Clip Details window..... 4:18
 - changing EDL Entry names in the Text EDL..... 4:19
- Networking..... *See separate booklet*
- Noise shaped dither..... 6:23
- Non 1-1 processes..... 6:40
- Non-Real-Time
- CD Mastering..... 8:44, 12:7
- Online Processing Window..... 6:38
- Offset, stereo
- adjusting individual EDL Entries..... 4:16
- Online button..... 3:4, 8:5
- Orange book CDs..... 8:48
- Out of DSP..... 4:20
- Outputs..... 11:16
- Overdubbing..... 2:5
- Log Overloads Window..... 6:50
- P**
- Passwords..... E:1
- Paste Buffer..... 4:6
- pasting whole EDLs..... 4:7
- Pause..... 3:4
- PC Audio Import..... 7:29
- Bounce to PC disk; WAV
- Copy..... 7:29
- Peak Displays..... 6:49
- Phase Reverse Controls..... 6:3
- Play Edit without region..... 5:23
- Playback..... 3:3
- Playlist
- Limitations..... 4:20
- Playlist
- default stream layout..... 9:4
 - setup options..... 9:4
 - splitting the window view..... 3:3
 - templates..... 4:4
 - viewing..... 3:1
- Playlist Streams
- comments display..... 9:4
- Playlist Editing mode
- using a mouse..... 5:3
 - using with the hardware controller..... 5:7
- Playlist menu
- Profile Display Mode..... 3:2
- Plug-ins..... 6:17
- bypass in scrub..... 4:23
- Portia..... 10:1
- disable video streams..... 10:4
 - disk to record to..... 10:3
 - does not play video..... 10:4
 - Editing..... 10:4
 - Error Messages..... 10:6
 - example setups..... 10:6, 10:10
 - Genlock..... 10:2
 - Other Setup options..... 10:4
 - Record Quality..... 10:3
 - Setup..... 10:4
 - sync settings..... 10:2
- Portia Overview..... 10:1
- Portia Record Setup..... 10:3
- Portia Sync Setup..... 10:1
- PQ Editing
- setup options..... 9:6
- PQ list offset..... 8:43
- Pre-roll and post-roll times..... 9:3
- Preview
- buttons on hardware controller..... 5:9
- Preview buttons
- in Transport Controls..... 5:5
- Printing
- PQ lists..... 8:40
- Printing The Text EDL..... 4:19
- Privileges..... E:1
- Process window..... 6:17
- Processes..... 6:17
- Processing
- adjustment in Mixer..... 6:6
 - inserting/deleting processes in Mixer strips..... 6:5
 - on recording..... 6:12
 - re-recording with..... 6:57
 - stereo linking in Mixer..... 6:10
- Profiles
- displaying in Playlist..... 3:1
 - Recreate Profiles..... 7:27
- Project menu..... 7:8
- Save Project..... 7:9
- Project window..... 7:9
- Projects..... 7:1
- closing..... 7:11
 - creating, opening, and closing..... 7:8
 - deleting..... 7:11
 - overview..... 7:7
- Properties - Tracks..... 2:3
- Punch-in..... 2:5

- Fixed Speed Scrubbing..... 3:8
- Format..... H:2
- Format disk
 - FAT 16 (2GB max) 7:24
 - FAT 16 (4GB max) 7:24
 - FAT 16 (MO format)..... 7:24
 - MAC HFS..... 7:24
 - SADiE 2 format 7:23
 - SADiE 3 format 7:23
- Front-Back pan 11:10
- G**
- Gaps in the EDL
 - removing 4:9
- Gate 6:7
- Genex GX8000..... 8:56
- Glue - repairing razor cuts..... 4:5
- Graphical EQ..... 6:20
- Grouping EDL Entries 4:11
- GX8000 8:56
- H**
- Hardware controllers
 - assigning faders..... 6:2
 - button summary C:1
 - references in this manual i
- Hardware Controllers
 - setup 8:6
- Hide strip 6:16
- HiDither 96..... 6:23
- Hotkeys..... i
 - setting and checking..... 9:7
- Hotspot 4:10
 - adjusting in Trim Editor..... 5:15
 - moving
 - with Clip Details window 4:17
 - with Text EDL..... 4:19
 - moving with Playlist Editing
 - hardware controller 5:8
 - mouse 5:4
- I**
- Import conform list 8:19
- Inactive Streams 4:22
- Input Monitor Window..... 2:8
- Installation
 - hardware *See separate booklet*
- Internal busses..... 6:12
- J**
- Jog 3:7
- joystick..... 11:11
- L**
- LCR..... 11:4
- LCRS..... 11:5
- LCRSS..... 11:6
- Left/Right swap..... 6:3
- Left-Right Pan..... 11:10
- Levels
 - changing EDL Entry replay levels
 - in Clip Details window 4:15
 - in Text EDL..... 4:19
 - controlling stream playback levels 6:1
- LFE 11:6
- Lightworks
 - and SADiE Integration..... 8:21
 - Autoconforming..... 8:21
 - Reading Lightworks Audio Files 8:24
 - Recording format..... 8:26
- Limiter 6:19
- Missing Tracks..... 7:14
- List Unplayable Points..... 4:21
- Locating 3:6
 - with hardware controllers 3:10
- Locator points
 - storing and recalling 3:8
- Locking Clips and Entries in sync
 - when using Trim Editor..... 5:18
- Loopable edit..... 5:16
- Looping..... 2:6, 3:9
 - setup 9:6
- Low Level Format..... H:3
- M**
- Machine Control 8:7
- Make Stereo 4:11
- Management privilege level..... E:1
- Manual De-click..... 6:36
- Mastering Limiter..... 6:19
- Maximise Strip..... 6:16
- medium errors H:2, H:3
- Menu bar A:4
- Message Box Placement 9:11
- Peak Metering 6:48
- Metering Window 6:49
- Microsoft® Windows®
 - review of basics..... A:1
- Minimise Strip 6:16
- Mixer..... 6:1
 - adding and deleting strips 6:12
 - customisation..... 6:14
 - input and output selection buttons 6:11
 - inserting new channel strips 6:6
 - my mixer's disappeared 6:16
 - saving and loading settings 6:8
 - set-up files..... 7:5
 - setup options..... 9:5
 - stereo strips 6:10
 - Templates..... 6:9
- Mixer Routing tutorial 6:58
- Mixer Strips
 - changing order 6:15
- Mixer Templates..... 11:18
- mono
 - using one channel of Clips..... 7:5
- Mono
 - ungrouping stereo EDL Entries to mono 4:11
- Mono to Stereo..... 4:11
- Mouse

- FAQs..... 11:19
- Front-Back pan..... 11:10
- joystick..... 11:11
- LCR bus..... 11:4
- LCRS bus..... 11:5
- LCRSS bus..... 11:6
- Left-Right Pan..... 11:10
- mixer strips..... 11:7
- outputs..... 11:16
- ppms..... 11:9, 11:12
- routing..... 11:9, 11:16
- strip controls..... 11:10
- width..... 11:12
- Surround Sound..... 11:1
- Sync Monitor window..... 8:6
- Sync working..... 8:9
 - maintaining sync..... 8:9
- Sync.
 - when using Trim Editor..... 5:18
- Synchronisation
 - Connections..... 8:1
 - maintaining when placing EDL Entries..... 4:10
 - Quick start..... 8:1
 - Setting up..... 8:1
 - time-stamp applied when recording..... 2:8
- Synchronisation..... 8:1
- T**
- Tag Tracks..... 7:13
- Hard Drives
 - Backup..... 7:19
 - Logging, Copy, Format..... 7:19
- Playlist and Mixer Templates..... 9:8
- Terminology..... G:1
- Text EDL..... 4:18
 - customising display layout..... 4:19
- Time bar
 - Playlist..... 3:6
 - use for playback and locating..... 3:6
- Time displays
 - adjusting..... 3:6, 3:10, 4:16
 - format..... 9:1
 - mouse..... 3:6
- Time Displays
 - use for moving EDL Entries..... 4:17
- Time Scrunch..... 6:47
- Time stretch..... 6:47
- Timecode
 - Connections..... 8:1
- Timemod..... 6:47
- Timestamping..... 2:8
- TimeSync..... 8:4, 8:10, 8:11
- Title bar..... A:3
- Toolbars..... 9:9
- Track at once CD..... 8:48
- Track Management..... 7:12
- Track names..... 7:27
 - displaying..... 8:12
- Tracks
 - associating with Projects..... 7:12
 - copying between audio disks..... 7:18
 - deleting..... 7:11, 7:15, 7:19
 - deleting all on a disk..... 7:23
 - management of audio disks..... 7:16
 - numbers of channels..... 2:1
 - properties..... 2:3
 - renaming..... 7:15, 7:19
 - start time..... 2:8
- Transmission Mode..... 3:5
- Trim editor
 - defining new clips..... 5:15
- Trim Editor..... 5:1
 - adjusting edits..... 5:12
 - display features..... 5:10
 - Make a Loopable edit..... 5:16
 - opening..... 5:10
 - preview buttons..... 5:14
 - razor-cut..... 5:18
 - reloading..... 5:17
 - setup options..... 9:4
 - writing back..... 5:17, 5:18
- Trim Editor..... 5:10
- Trim Editor menu..... 5:11
- Trim slips..... 5:18
- U**
- Undo and redo..... 9:5
- Undo and Redo..... 4:14
- Ungroup button..... 4:11
- Use each local disk in turn..... 2:9, 12:3
- Use least full local disk..... 2:9, 12:3
- Use specified disk(s)..... 2:9, 12:3
- User ini file directory..... E:2
- User ini files..... E:2
- User Management..... E:1
- User zoom in Trim Editor..... 5:19
- usernames..... E:1
- UV22..... 6:18
- V**
- Varispeed..... 6:46
 - on the whole EDL..... 3:4
- V-cut mode..... 5:1
- Video input..... 10:1
- View menu
 - Background Recording..... 2:7
 - Setup window..... 9:1
 - Sync Monitor window..... 8:6
 - Toolbars..... 9:10
- Viewing order button in Trim Editor..... 5:19
- W**
- WAV..... 7:26, 7:29
- Width..... 6:17
- Width..... 11:12
- Window menu
 - Cascade, Tile, Arrange Icons..... 9:9
 - New Window..... 9:9
- Windows

- Q**
 Quality level of Tracks 2:4
- R**
 Razor Cut 4:4
 Razor Cut Region 5:23
 Razor-cuts
 splice or v-cuts 5:1
 Real-Time
 CD-R 8:44
 Real-time vs. non-real time operation 2:5
 Recording
 levels 2:4
 multi-channel Tracks 2:1
 overview 2:1
 source selection buttons 6:11
 Recovering lost work 7:12
 Recovering lost work 7:11
 Recreate Profiles 7:27
 Red DSP warning 4:20
 Region
 Play Edit without region 5:23
 select region start & end 5:22
 zoom tools 5:22
 Region Editing 5:20
 adjusting the region 5:22
 defining a region 5:21
 enabling 5:20
 previews 5:23
 turning it on 5:20
 Region Insert Mode 5:23
 Region Overwrite mode 5:23
 Renaming Entries
 in Trim Editor 5:15
 Re-Organising the Mixer 6:14
 Resampler 6:46
 reset region markers 5:22
 Resync Track 2:8
 Retake button 2:3
 Reveal hidden strip 6:16
 Reverb 6:17
 Reverse 4:14
 Routing
 tutorial 6:58
 Routing arrangements 6:11
 Routing toolbar 6:12
 Rushes, syncing 8:10
- S**
 SADiE Disk Checker H:1
 SADiE Settings Files E:2
 Sample rate and resolution 2:2, 2:4
 Sample Rate Converter 6:40
 Saving and Loading your work 7:1
 Scan Drives 7:17
 Scissors 4:4, 5:2
 Screen layout See Desktops
 Screen resolution and size 9:10
 scrollbars A:4
- Scrolling
 Playlist 3:2
 Scrub
 turning off plug-ins 4:23
 Scrubbing
 Playlist 3:7
 setting mouse sensitivity 9:6
 SCSI disk
 clearing space 4:12, 6:57
 SCSI disks See Disks, audio
 SCSI Disks
 Choosing a disc for Recording 2:9
 SDII 7:26
 Selecting/deselecting EDL Entries
 in the Playlist 4:5
 in the Text EDL 4:19
 Setup window 9:1
 Show sample values 5:23
 Shuttle 3:7
 Slip
 Trim 5:18
 Snap to Cursor 4:9
 Snapshot Automation 6:54
 Snapshot buttons
 in Trim editor 5:19
 Software Installation B:1
 Software licence iii
 Solo and mute 3:4
 Source Tracks Folder 7:12
 Source Tracks Toolbar 7:15
 SPDIF CD-R recorders 8:52
 Splice-cut mode 5:1
 SRC 6:40
 Starting SADiE automatically 9:12
 Startup options 9:12
 Status bar
 displays 9:1
 Stereo EDL Entries
 ungrouping to two mono Entries 4:11
 Stereo to Mono 4:11
 Stereo Width 6:17
 Streams
 adding to and removing from the Playlist 4:2
 changing streams for EDL entries 4:8
 enabling/disabling 4:2
 merged and stereo 4:2
 renaming 4:4
 units 3:3
 changing Streams for EDL Entries 4:19
 Subcode reading 8:51
 Subgroups, Mixer 6:13
 Sub-Projects 7:11
 Surface Scan H:2
 Surround
 busses 11:4
 creating a mixer 11:7
 divergence 11:13
 Divergence 11:11
 enabling 11:2

moving and sizing	A:3, A:4
splitting	9:9
Writing Back from Trim Editor.....	5:17, 5:18
Y	
Yellow DSP warning.....	4:20
Z	
Zoom buttons	
Playlist.....	3:2